



United States  
Department of  
Agriculture

Soil  
Conservation  
Service

In cooperation with  
United States Department  
of Agriculture, Forest  
Service; United States  
Department of the  
Interior, Bureau of Land  
Management; University  
of Idaho, College of  
Agriculture; and Idaho  
Soil Conservation  
Commission

# Soil Survey of Elmore County Area, Idaho, Parts of Elmore, Owyhee, and Ada Counties









# How To Use This Soil Survey

## General Soil Map

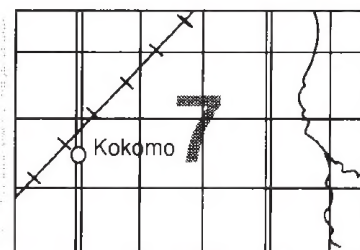
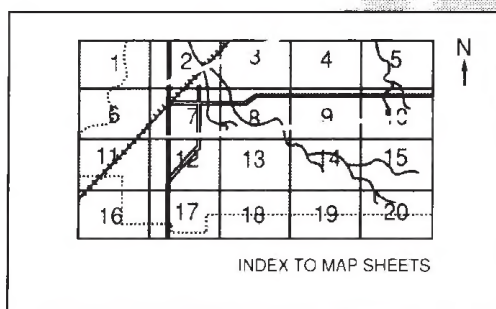
The general soil map, which is the color map preceding the detailed soil maps, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

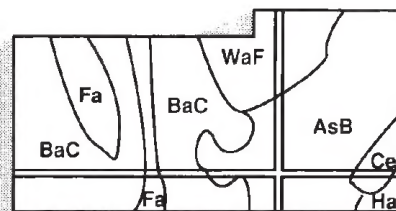
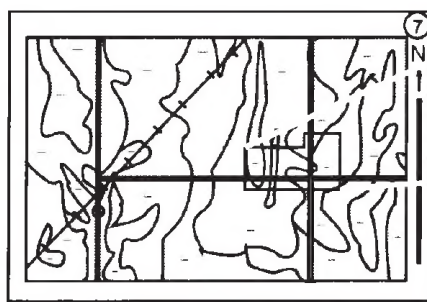
## Detailed Soil Maps

The detailed soil maps follow the general soil map. These maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**, which precedes the soil maps. Note the number of the map sheet, and turn to that sheet.



Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Index to Map Units** (see Contents), which lists the map units by symbol and name and shows the page where each map unit is described.



NOTE: Map unit symbols in a soil survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

The **Summary of Tables** shows which table has data on a specific land use for each detailed soil map unit. See **Contents** for sections of this publication that may address your specific needs.



This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other federal agencies, state agencies including the Agricultural Experiment Stations, and local agencies. The Soil Conservation Service has leadership for the federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1985. Soil names and descriptions were approved in 1986. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1985. This survey was made cooperatively by the Soil Conservation Service; the Forest Service; the Bureau of Land Management; the University of Idaho, College of Agriculture; and the Idaho Soil Conservation Commission. It is part of the technical assistance furnished to the Elmore and Bruneau River Soil Conservation Districts.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

All programs and services of the Soil Conservation Service are offered on a nondiscriminatory basis, without regard to race, color, national origin, religion, sex, age, marital status, or handicap.

**Cover: View looking south from High Prairie. Brinegar loam, 0 to 4 percent slopes, is under native pasture in the foreground, and Roanhide, Bauscher, Schoolhouse, and Oland soils are on the hills. Pockets of quaking aspen are on Demast soils.**



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# Foreword

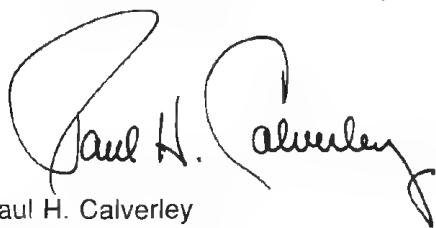
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This soil survey contains information that can be used in land-planning programs in the Elmore County area. It contains predictions of soil behavior for selected land uses. The survey also highlights limitations and hazards inherent in the soil, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

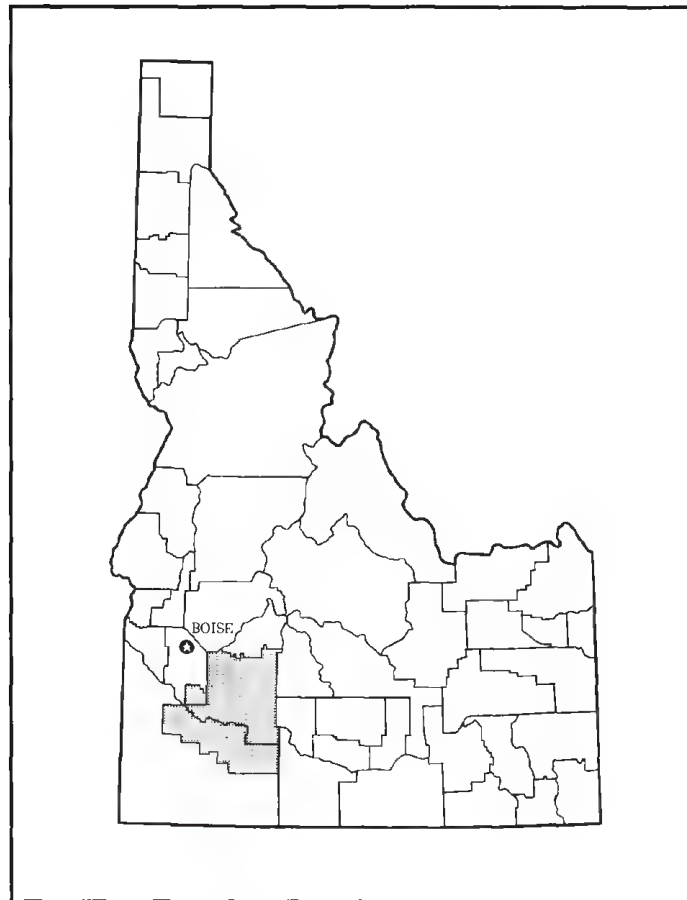
This soil survey is designed for many different users. Farmers, ranchers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Soil Conservation Service or the Cooperative Extension Service.

A handwritten signature in black ink, reading "Paul H. Calverley". The signature is fluid and cursive, with the first name "Paul" being the most prominent.

Paul H. Calverley  
State Conservationist  
Soil Conservation Service



**Location of the Elmore County area in Idaho.**

# Soil Survey of Elmore County Area, Idaho, Parts of Elmore, Owyhee, and Ada Counties

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By Harley R. Noe, Soil Conservation Service

Fieldwork by Harley R. Noe, Clint W. Tuve, Larry E. Wright, Daryl L. Lund, Mark P. Keller, H.C. McCarver, and Ray J. Grow, Soil Conservation Service, and Brent Roath, Forest Service

United States Department of Agriculture, Soil Conservation Service,  
in cooperation with  
United States Department of Agriculture, Forest Service; United States Department of the Interior, Bureau of Land Management; University of Idaho, College of Agriculture; and Idaho Soil Conservation Commission

ELMORE COUNTY AREA is in the southwestern part of Idaho. It includes about 1,492,280 acres in Elmore County; 1,005,110 acres in the northern part of Owyhee County; and 92,880 acres in the southeast corner of Ada County. The total area is about 2,590,270 acres, or 4,047 square miles. The survey area consists of private land, State land, and Federal land that is administered by the Bureau of Land Management and by the Forest Service. Mountain Home, the county seat of Elmore County, had a population of 7,540 in 1980.

The northern part of the survey area consists of steep, rugged mountains. The South Fork Boise River is the main tributary flowing in a westerly direction from the mountains. Many smaller creeks flow in a southerly direction from the foothills in the north-central part of the area. The Snake River flows from east to west through the center of the survey area. The areas north of the Snake River to the foothills and south of the river to the survey area boundary consist of dissected alluvial and basalt plains.

The lowest point in the survey area, about 2,330 feet, is the point at which the Snake River flows into Ada County, near Castle Butte. Grand View, located along the Snake River in the southwestern part of the survey area, is at an elevation of about 2,365 feet. Mountain Home, located in the center of the survey area, is at an

elevation of about 3,140 feet. The highest point in the survey area, about 8,216 feet, is Jumbo Mountain. It is in the extreme northeast corner of the area.

The descriptions, names, and delineations of soils in this soil survey do not fully agree with those of the soils in the adjacent Ada County Area and Camas County Area surveys. Differences are the result of a better knowledge of soils, modifications in series concepts, or variations in the intensity of mapping or the extent of the soils in the survey areas.

## General Nature of the Survey Area

This section gives general information about the survey area. It describes history and development, water supply, agriculture, and climate.

## History and Development

Hudson's Bay Company trappers were probably the first explorers in the Grand View/Mountain Home area.

In 1843, Owyhee County became the first county in the territory of Idaho. Initially, it was made up of the area from the Snake River south to the Nevada border and from Oregon on the west to Wyoming on the east.

Elmore County, which was formerly a part of Alturas



County, extends from the North Fork Boise River south to the Snake River and from American Falls west to Indian Creek. It was established by the Territorial Legislature of Idaho on February 7, 1889.

Until miners came to the area, the survey area was a relatively unknown region. The discovery of gold and silver resulted in an immigration of pioneers. Mining communities were the center of activity, and the agricultural communities were of secondary importance in the area.

By the late 1800's, ranches had been developed along the various creeks in Elmore and Owyhee Counties. In 1884, the Bruneau River Valley was settled, and settlement of the Smith Prairie area followed. In 1888, the Mountain Home Irrigation District was formed, and in 1904, the King Hill Irrigation District and the Grandview Canal System at Bruneau were established.

The town of Mountain Home was originally located at the base of the foothills along Rattlesnake Creek. In 1882, the Oregon Shortline Railroad was established and Mountain Home was moved to its present location and named the county seat.

Mountain Home and the surrounding area became the commercial center for farms and ranches. It was a shipping point for livestock and was used as a place for sheepherders to rendezvous when flocks were moved from summer range areas to lower areas for the winter.

For nearly 50 years, Mountain Home changed very little. By the late 1930's, however, mining activity in the area was decreasing rapidly. In 1942, construction of a large Air Force base was begun. As late as 1940, the population of Mountain Home was about 1,600. Presently it has a population of about 9,000, and the Air Force base has a population of about 5,000. The rest of the towns in the survey area are mainly small shopping communities for surrounding farms and ranches.

## Water Supply

Water is the backbone of the agricultural economy in the survey area. There are four main sources of irrigation water—reservoirs and small stream storage areas, gravity diversions and pumps on the Snake River, wells, and stream diversions. Three reservoirs built by the Mountain Home Irrigation District in the latter 1800's were the first ones constructed in the area for storage of irrigation water.

There are about 22 organized irrigation districts serving approximately 80,000 acres in the survey area. In addition, there are several independent canal companies. As late as 1960, only about 60,000 acres in

the survey area was irrigated. By 1984, the extent of irrigated lands had increased to about 196,000 acres. Most of the water for the additional acreage is provided by 200- to 600-foot wells and high-lift irrigation pumps on the Snake River.

Most of the land irrigated by direct diversion from the many creeks in the area is used for small grain. In most years the water in the creeks is depleted by mid-July.

Anderson Ranch, Arrowrock, C.J. Strike, and Bliss Dams provide hydroelectric power and flood control for the survey area.

Wells that generally range in depth from 50 to 400 feet supply water for domestic use. Several artesian wells supply water for irrigation as well as for domestic use. Most of these wells are south of the Snake River, in Owyhee County. Many of them produce water that is naturally as warm as 140 degrees F. These wells provide an important resource that could be used for warm-water fisheries or greenhouses.

## Agriculture

Cattle and sheep production in the survey area started about the same time that railroad service was established. Rail transportation made it possible to ship farm products to markets, and by the early 1900's, the area had become one of the leading livestock producers in Idaho. At the height of the sheep industry, Hill City, which is just east of the Elmore County line and at the end of the railroad line, was the largest lamb shipping terminal in the West. Since the 1950's, the sheep industry has declined dramatically but the cattle industry has increased. The Snake River Plain is used for grazing in winter and spring, and the mountains are used for grazing in summer.

Irrigated agriculture began in the area during the late 1800's. Many of the creek bottoms were first irrigated about 1884. Crops were used mainly as supplemental feed for livestock.

The Mayfield Soil Conservation District, which covered the northwest corner of Elmore County, was formed in 1940 to improve the range condition of the area. In 1952, the Elmore Soil Conservation District was formed to cover the rest of Elmore County. This district encompassed all the irrigated land in the county, and its main goals were to improve irrigation and drainage and to control flooding on the various creeks that dissect the desert. In 1953, the Bruneau River Soil Conservation District was formed in Owyhee County to control new irrigation developments and to help overcome severe drainage problems.

The soils in this survey area are used mainly for

wheat, barley, oats, corn, dry beans, mint, sugar beets, potatoes, alfalfa, and pasture. In addition, limited quantities of alfalfa, clover, and specialty crops, such as vegetables, are grown for seed.

## Climate

Prepared by the National Climatic Data Center, Asheville, North Carolina.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Grand View, Hill City, and Mountain Home in the period 1951 to 1981. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter, the average temperature is 33 degrees F at Grand View, 21 degrees at Hill City, and 32 degrees at Mountain Home and the average daily minimum temperature is 22 degrees at Grand View and Mountain Home and 9 degrees at Hill City. The lowest temperature on record, which occurred at Hill City on January 22, 1962, is -42 degrees. In summer, the average temperature is 72 degrees at Grand View, 62 degrees at Hill City, and 71 degrees at Mountain Home and the average daily maximum temperature is 87 degrees at all three locations. The highest recorded temperature, which occurred at Grand View on July 17, 1951, and at Mountain Home on July 15, 1955, is 110 degrees.

Growing degree days are shown in table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total annual precipitation is about 7 inches at Grand View, 15 inches at Hill City, and 10 inches at Mountain Home. Of this, about 40 percent usually falls in April through September. The growing season for most crops falls within this period. The heaviest 1-day rainfall during the period of record was 2.02 inches at Hill City on February 20, 1952. Thunderstorms occur on about 15 days each year.

The average seasonal snowfall is about 7 inches at Grand View, 104 inches at Hill City, and 14 inches at Mountain Home. The greatest snow depth at any one time during the period of record was 46 inches at Hill City. Grand View and Mountain Home have at least 1 inch of snow on the ground at least 1 day per year. The number of such days varies greatly from year to year.

The average relative humidity in midafternoon is about 50 percent. Humidity is higher at night, and the average at dawn is about 70 percent. The sun shines 80 percent of the time possible in summer and 40 percent in winter. The prevailing wind is from the southeast. Average windspeed is highest, 10 miles per hour, in spring.

## How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants growing on the soils; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landscape or with a segment of the landscape. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landscape, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture,

size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. The system of taxonomic classification used in the United States is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of

the soils are field tested through observation of the soils in different uses under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot assure that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.



# General Soil Map Units

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The general soil map at the back of this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, a map unit consists of one or more major soils or miscellaneous areas and some minor soils or miscellaneous areas. It is named for the major soils or miscellaneous areas. The soils or miscellaneous areas making up one unit can occur in other units but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land use. Areas of suitable soils or miscellaneous areas can be identified on the map. Likewise, areas that are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

Some soil boundaries and soil names on the general soil map for this survey area do not match those on the general soil maps for the adjacent Ada County Area and Camas County Area surveys. Differences are the result of changes in series concepts, variations in slope groupings, and the application of the latest soil classification system.

The general map units in this survey have been grouped into general kinds of landscapes for broad interpretive purposes.

## Map Unit Descriptions

### Soils on Stream Terraces

This group consists of three map units. It makes up about 7 percent of the survey area. The soils in this group are on low to high terraces of Camas Creek and of the Snake River and its tributaries. They formed in mixed alluvium.

### 1. Brinegar-Houk

*Nearly level, very deep, somewhat poorly drained and moderately well drained soils; on low stream terraces*

This map unit makes up about 0.5 percent of the survey area (fig. 1). Slopes range from 0 to 4 percent. Elevation is 5,000 to 5,400 feet. The average annual precipitation is 14 to 16 inches, the average annual air temperature is 40 to 44 degrees F, and the frost-free season is 65 to 75 days.

Minor components of this map unit are Haplaquolls and Simonton, Bauscher, and Elkcreek soils.

This map unit is used mainly for nonirrigated and irrigated small grain, hay, and pasture. The main limitations are wetness and the short frost-free season.

### 2. Bram-Mazuma-Grandview

*Nearly level, very deep, somewhat poorly drained to well drained soils; on low and medium stream terraces*

This map unit makes up about 3 percent of the survey area (fig. 2). Slopes range from 0 to 4 percent. Elevation is 2,300 to 2,900 feet. The average annual precipitation is 6 to 8 inches, the average annual air temperature is 51 to 53 degrees F, and the frost-free season is 130 to 150 days.

Minor components of this map unit are Baldock, Bramwell, Dors, Garbutt, Hawsley, Letha, and Vanderhoff soils and Fluvaquents.

This map unit is used mainly for irrigated crops and pasture. The main limitations are the depth to a seasonal high water table, salinity, and restricted available water capacity.

### 3. Timmerman-Royal-Buko

*Nearly level to strongly sloping, very deep, well drained and somewhat excessively drained soils; on medium and high stream terraces*

This map unit makes up about 3.5 percent of the survey area. Slopes range from 0 to 20 percent. Elevation is 2,500 to 3,400 feet. The average annual

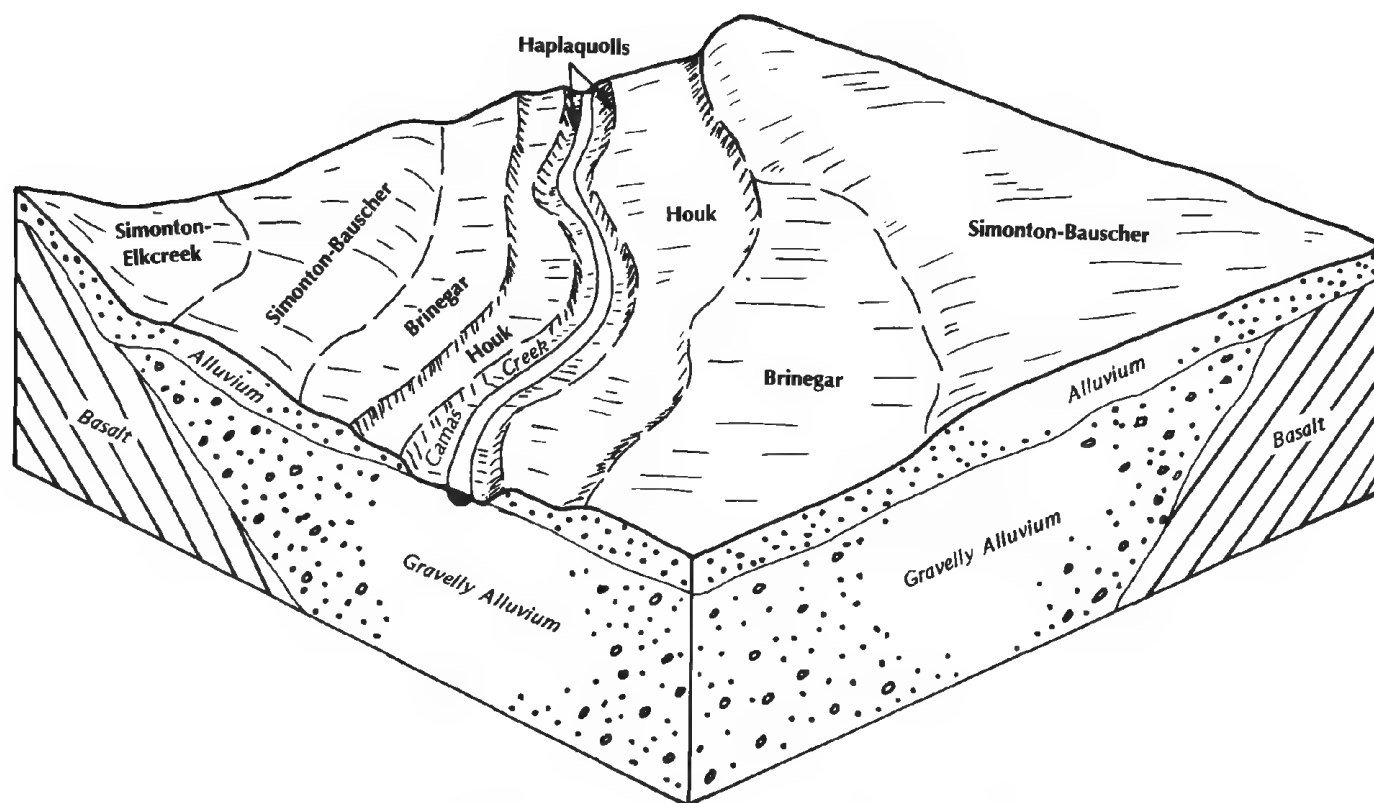


Figure 1.—Typical pattern of soils and underlying material in general soil map unit 1.

precipitation is 8 to 10 inches, the average annual air temperature is 51 to 52 degrees F, and the frost-free season is 130 to 140 days.

Minor components of this map unit are Davey, Monroe, and Lankbush soils. Also of minor extent are Chardoton soils and Urban land in areas near Mountain Home.

This map unit is used mainly for irrigated crops and pasture. The main limitations are restricted available water capacity, the hazard of wind erosion, and the hazard of water erosion in the steeper areas.

#### Soils on Dissected Piedmonts

This group consists of two map units. It makes up about 10 percent of the survey area. The soils in this group formed in alluvium derived from igneous rock.

#### 4. Lankbush-Chilcott-Lanktree

*Nearly level to strongly sloping, moderately deep and very deep, well drained soils; on alluvial plains and terraces*

This map unit makes up about 4 percent of the

survey area. Slopes range from 0 to 12 percent.

Elevation is 3,100 to 4,200 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 49 to 51 degrees F, and the frost-free season is 110 to 130 days.

Minor components of this map unit are Chardoton, Elijah, Haw, Jenness, Power, Trosi, and Tenmile soils.

This map unit is used mainly as rangeland. A few areas are used for irrigated crops. The main limitations are the low precipitation, the depth to a pan in some areas, and restricted permeability.

#### 5. Shoofly-Ornea-Abgese

*Nearly level to steep, shallow and very deep, well drained soils; on alluvial plains and fan terraces*

This map unit makes up about 6 percent of the survey area (fig. 3). Slopes range from 0 to 40 percent. Elevation is 2,900 to 4,000 feet. The average annual precipitation is 7 to 9 inches, the average annual air temperature is 49 to 52 degrees F, and the frost-free season is 120 to 140 days.

Minor components of this map unit are Dors,

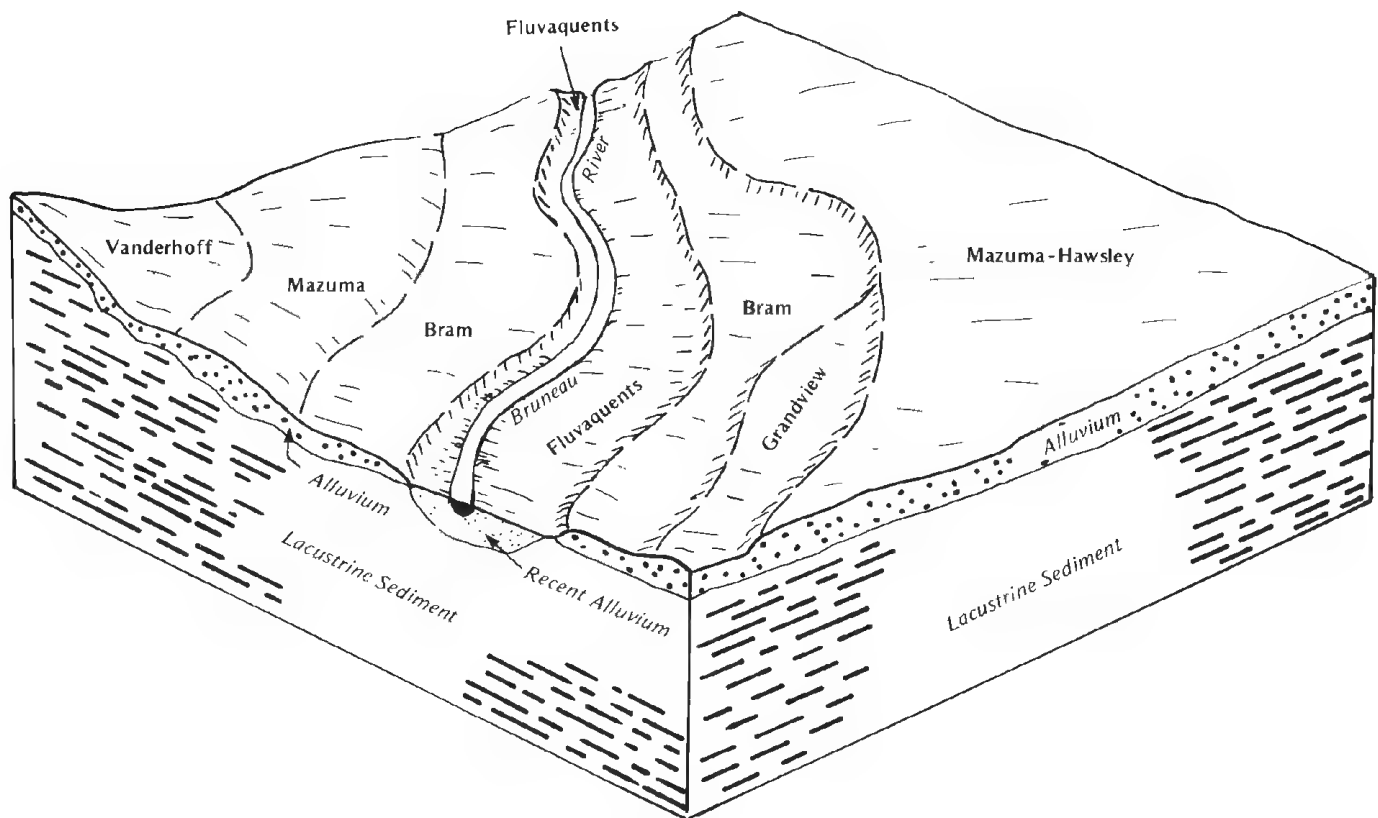


Figure 2.—Typical pattern of soils and underlying material in general soil map unit 2.

Hawsley, Mazuma, McKeeth, Royal, Loray, and Perazzo soils.

This map unit is used mainly as rangeland. The main limitations are the low precipitation and restricted available water capacity.

#### Soils on Basalt Plains, in Canyons, and on Terraces

This group consists of five map units. It makes up about 36 percent of the survey area. The soils in this group formed in loess, mixed alluvium, and material weathered from basalt.

#### 6. Simonton-Gaib-Harahill

*Gently sloping to steep, shallow, moderately deep, and very deep, well drained soils; on basalt plains and canyon sides*

This map unit makes up about 4 percent of the survey area. Slopes range from 2 to 60 percent. Elevation is 4,400 to 5,500 feet. The average annual precipitation is 14 to 20 inches, the average annual air

temperature is 40 to 44 degrees F, and the frost-free season is 60 to 80 days.

Minor components of this map unit are Brownlee, Elkcreek, and Bauscher soils; Rock outcrop; Rubble land; and Willho and Yutru soils.

This map unit is used as rangeland, pasture, hayland, and irrigated cropland. The main limitations are the depth to bedrock in some areas, stones on the surface, the slope in some areas, and the limited frost-free season.

#### 7. Colthorp-Chilcott-Kunaton

*Nearly level to strongly sloping, shallow and moderately deep, well drained soils; on basalt plains*

This map unit makes up about 10 percent of the survey area. Slopes range from 0 to 12 percent. Elevation is 2,900 to 4,400 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 48 to 51 degrees F, and the frost-free season is 100 to 130 days.

Minor components of this map unit are Chardoton,

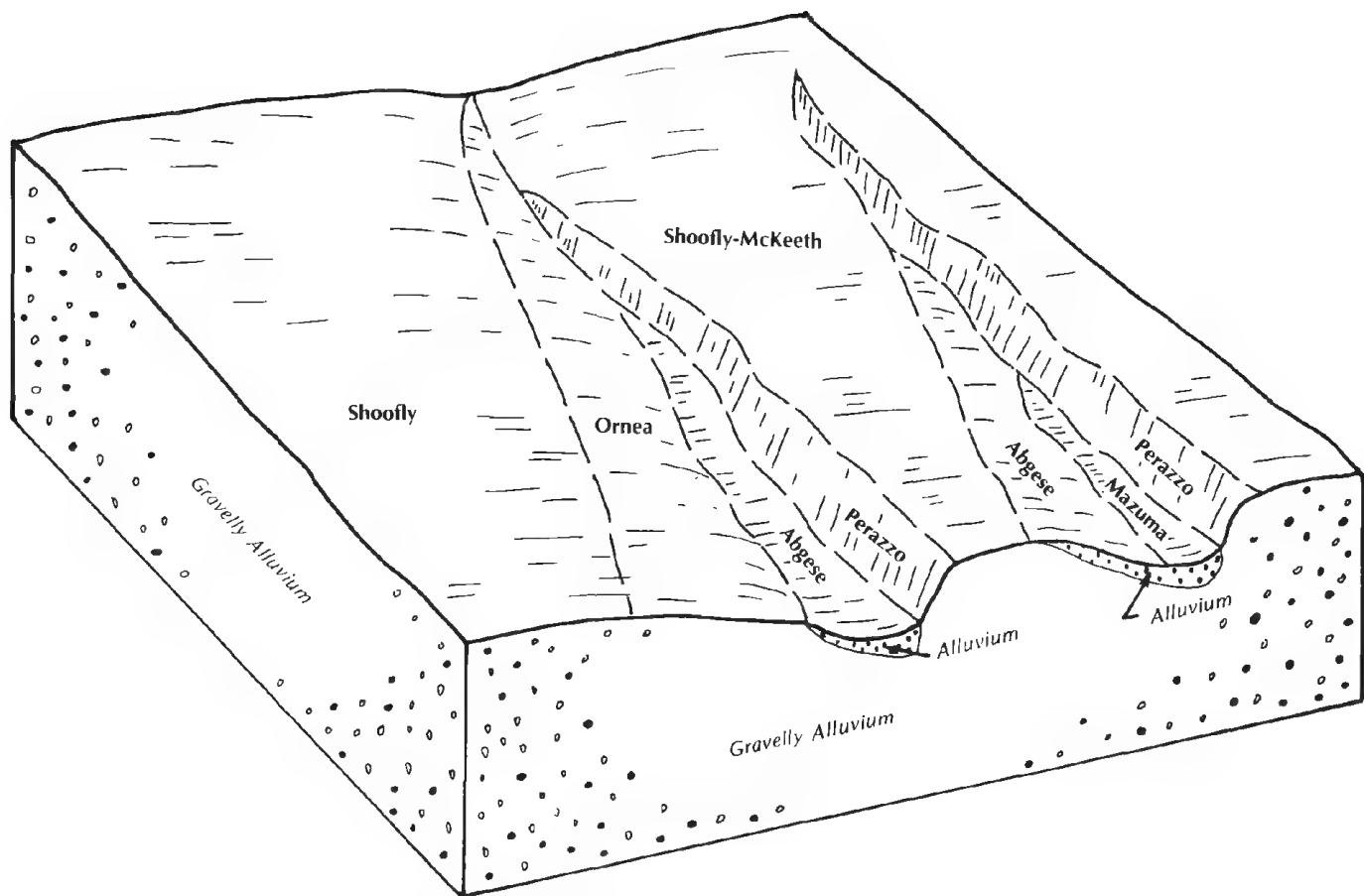


Figure 3.—Typical pattern of soils and underlying material in general soil map unit 5.

Elijah, Day, Minidoka, Minveno, Karcac, Power, and Purham soils.

This map unit is used as rangeland and irrigated cropland. The main limitations are the depth to bedrock or to a hardpan and restricted permeability.

#### 8. Trevino-Garbutt-Weso

*Nearly level to strongly sloping, shallow and very deep, well drained soils; on basalt plains*

This map unit makes up about 11 percent of the survey area. Slopes range from 0 to 20 percent. Elevation is 2,800 to 3,800 feet. The average annual precipitation is 8 to 10 inches, the average annual air temperature is 49 to 52 degrees F, and the frost-free season is 120 to 130 days.

Minor components of this map unit are Colthorp, Bahem, Minveno, and Minidoka soils; Rock outcrop; and Power soils.

This map unit is used mainly as rangeland. The main limitations are the low precipitation and the depth to bedrock in some areas.

#### 9. Purdam-Owsel-Shano

*Nearly level to strongly sloping, moderately deep and very deep, well drained soils; on basalt plains*

This map unit makes up about 10 percent of the survey area. Slopes range from 0 to 12 percent. Elevation is 2,800 to 4,500 feet. The average annual precipitation is 8 to 10 inches, the average annual air temperature is 48 to 51 degrees F, and the frost-free season is 110 to 140 days.

Minor components of this map unit are Elijah, Truesdale, Royal, and Sebree soils.

This map unit is used mainly as rangeland and irrigated cropland. The main limitations are the low precipitation and the depth to a hardpan in some areas.



## 10. Sidlake-Bruncan-Owsel

*Nearly level to strongly sloping, shallow, moderately deep, and very deep, well drained soils; on basalt plains and terraces*

This map unit makes up about 1 percent of the survey area. Slopes range from 0 to 12 percent. Elevation is 3,200 to 4,400 feet. The average annual precipitation is 9 to 10 inches, the average annual air temperature is 48 to 51 degrees F, and the frost-free season is 100 to 130 days.

Minor components of this map unit are Chilcott, Colthorp, Cottle, Minveno, and Purdam soils.

This map unit is used mainly as rangeland. The main limitations are the low precipitation and the depth to a hardpan or to bedrock in some areas.

### Soils on Dissected Terraces and on Plains

This group consists of three map units. It makes up about 21 percent of the survey area. The soils in this group formed in alluvium derived from various kinds of rock.

## 11. Typic Torriorthents-Mazuma-Vanderhoff

*Nearly level to very steep, moderately deep to very deep, well drained to excessively drained soils; on dissected terraces*

This map unit makes up about 10 percent of the survey area. Slopes range from 0 to 70 percent. Elevation is 2,400 to 3,500 feet. The average annual precipitation is 6 to 8 inches, the average annual air temperature is 50 to 53 degrees F, and the frost-free season is 130 to 150 days.

Minor components of this map unit are Dors, Perazzo, Ornea, McKeeth, and Hawsley soils; Badland; and Garbutt and Loray soils.

This map unit is used mainly as rangeland. The main limitations are the low precipitation, the slope in some areas, and salinity.

## 12. Royal-Buko-Davey

*Nearly level to steep, very deep, well drained and somewhat excessively drained soils; on dissected terraces*

This map unit makes up about 7 percent of the survey area. Slopes range from 0 to 40 percent. Elevation is 2,500 to 3,500 feet. The average annual precipitation is 8 to 10 inches, the average annual air temperature is 49 to 52 degrees F, and the frost-free season is 120 to 140 days.

Minor components of this map unit are Quincy, Arbidge, Owsel, and Shano soils; Dune land; Xerollic Camborthids; and Xeric Torriorthents.

This map unit is used mainly as rangeland and irrigated cropland. The main limitations are the low precipitation, restricted available water capacity, the hazard of water erosion in the steeper areas, and the hazard of wind erosion.

## 13. Truesdale-Scoon-Elijah

*Nearly level to strongly sloping, shallow and moderately deep, well drained soils; on terraces and plains*

This map unit makes up about 4 percent of the survey area. Slopes range from 0 to 12 percent. Elevation is 2,900 to 3,400 feet. The average annual precipitation is about 9 inches, the average annual air temperature is 50 to 52 degrees, and the frost-free season is 130 to 140 days.

Minor components of this map unit are Purdam, Owsel, Davey, Buko, Royal, and Arbidge soils.

This map unit is used mainly as rangeland and irrigated cropland. The main limitations are the low precipitation and the depth to a hardpan.

### Soils on Volcanic Foothills

This group consists of one map unit. It makes up about 8 percent of the survey area. The soils in this group are on foothills in the northern part of the survey area. They formed dominantly in material weathered from rhyodacitic rock.

## 14. Elkcreek-Immiant-Gaib

*Gently sloping to steep, shallow and moderately deep, well drained soils; on foothills*

This map unit makes up about 8 percent of the survey area. Slopes range from 4 to 60 percent. Elevation is 4,500 to 6,700 feet. The average annual precipitation is 14 to 20 inches, the average annual air temperature is 41 to 46 degrees F, and the frost-free season is 60 to 90 days.

Minor components of this map unit are Brownlee, Simonton, Badge, Ruckles, and Demast soils.

This map unit is used mainly as rangeland. The main limitations are the slope in some areas, stones on the surface in some areas, and the hazard of water erosion.

### Soils on Granitic Mountains and Foothills

This group consists of three map units. It makes up about 18 percent of the survey area. The soils in this

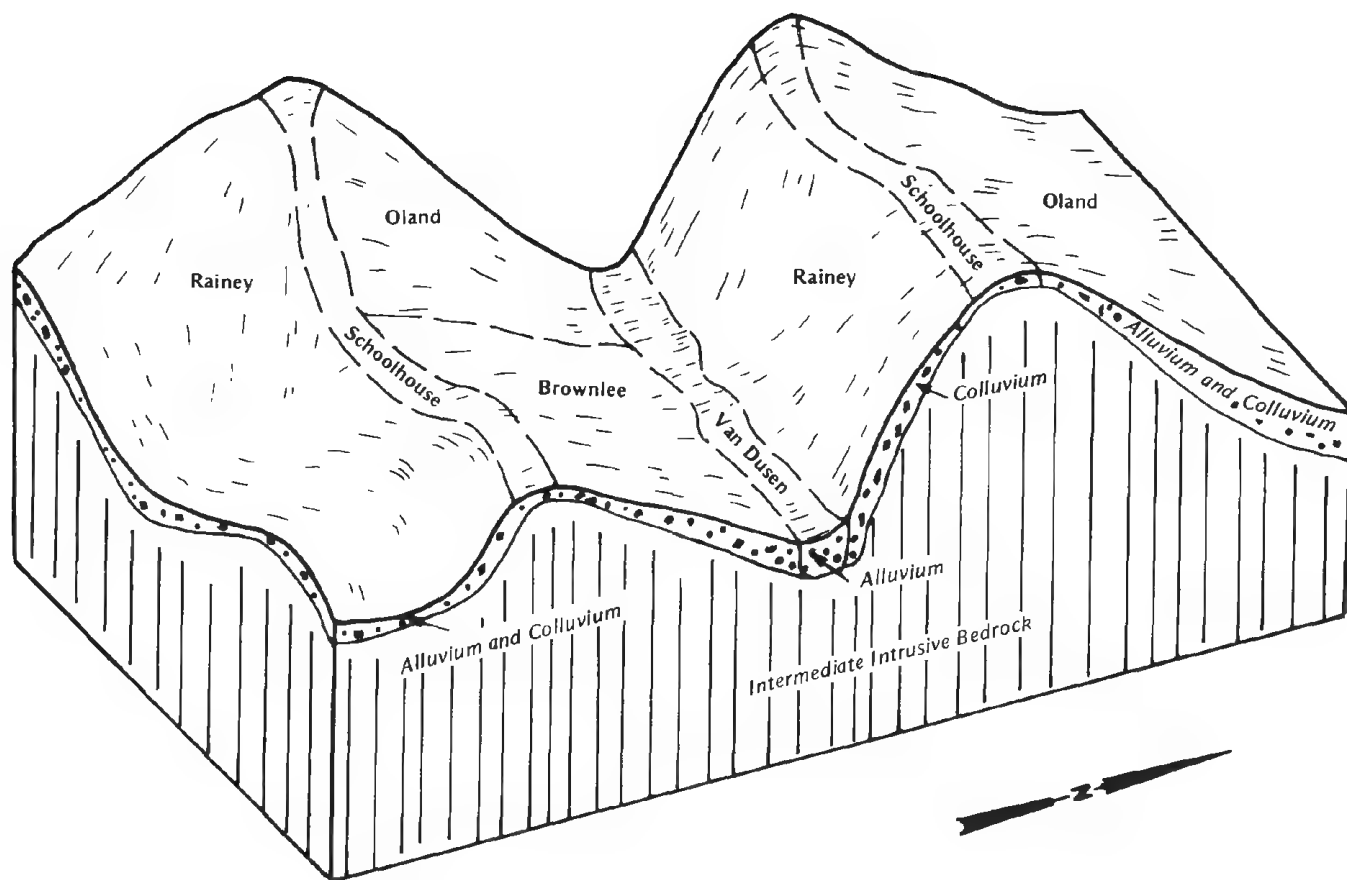


Figure 4.—Typical pattern of soils and underlying material in general soil map unit 16.

group are on mountains and foothills in the northern part of the survey area. They formed in material weathered from intermediate intrusive rock.

#### 15. Roanhide-Bauscher

*Strongly sloping to steep, moderately deep and very deep, well drained soils; on hills*

This map unit makes up about 6 percent of the survey area. Slopes range from 10 to 60 percent. Elevation is 4,400 to 6,400 feet. The average annual precipitation is 14 to 20 inches, the average annual air temperature is 40 to 45 degrees, and the frost-free season is 50 to 80 days.

Minor components of this map unit are Elkcreek, Harahill, Quartzburg, Schoolhouse, and Simonton soils.

This map unit is used mainly as rangeland. The main limitations are the slope and the hazard of water erosion.

#### 16. Rainey-Oland-Schoolhouse

*Moderately steep to steep, shallow, moderately deep, and very deep, well drained and excessively drained soils; on hills*

This map unit makes up about 5 percent of the survey area (fig. 4). Slopes range from 20 to 60 percent. Elevation is 3,500 to 5,500 feet. The average annual precipitation is 14 to 20 inches, the average annual air temperature is 45 to 49 degrees F, and the frost-free season is 85 to 120 days.

Minor components of this map unit are Bauscher, Brownlee, Farrot, Haw, and Van Dusen soils.

This map unit is used mainly as rangeland. The main limitations are the depth to bedrock in some areas, the slope, and the hazard of water erosion.

#### 17. Broad Canyon-Switchback-Quartzburg

*Strongly sloping to very steep, moderately deep and*

*deep, well drained and excessively drained soils; on mountainsides*

This map unit makes up about 7 percent of the survey area. Slopes range from 10 to 70 percent. Elevation is 5,000 to 7,800 feet. The average annual precipitation is 25 to 35 inches, the average annual air temperature is 39 to 43 degrees F, and the frost-free season is 50 to 60 days.

Minor components of this map unit are Coski, Graylock, and Grousecreek soils; Haplaquolls; and Moran, Rainey, Roanhide, Schoolhouse, Stavely, Teewinot, and Wagontown soils.

This map unit is used mainly as woodland, grazing land, and wildlife habitat. The main limitations are the slope, the hazard of water erosion, and the depth to bedrock.





## Detailed Soil Map Units

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The map units on the detailed soil maps at the back of this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the soil maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses. More information on each map unit is given under "Use and Management of the Soils."

A map unit delineation on a map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils or miscellaneous areas. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils and miscellaneous areas are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes.

Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some included areas that belong to other taxonomic classes.

Most included soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, inclusions. They may or may not be mentioned in the map unit description. Other included soils and miscellaneous areas, however, have properties and behavior divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, inclusions. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The included areas of contrasting soils or miscellaneous areas are mentioned in the map unit descriptions. A few

included areas may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of included areas in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into segments that have similar use and management requirements. The delineation of such landscape segments on the map provides sufficient information for the development of resource plans, but if intensive use of small areas is planned, onsite investigation is needed.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the upper layer or of the underlying material, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the upper layer or of the underlying material. They also can differ in slope, stoniness, salinity, wetness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Davey loamy sand, 4 to 12 percent slopes, is one of several phases in the Davey series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are called complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Davey-Buko complex, 1 to 12 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Roanhite-Bauscher association, 10 to 30 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Xeric Torriorthents and Xerollic Camborthids, 8 to 20 percent slopes, is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop and Rubble land are examples.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables (see "Summary of Tables") give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

## Map Unit Descriptions

### 1—Abgese loamy sand, 2 to 8 percent slopes

#### *Composition*

Abgese soil and similar inclusions—85 percent  
Contrasting inclusions—15 percent

#### *Setting*

*Position on landscape:* Alluvial plains, fan terraces  
*Elevation:* About 3,400 feet  
*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 50 degrees F  
*Frost-free season:* About 125 days

### *Characteristics of the Abgese Soil*

#### *Typical profile:*

0 to 6 inches—brown loamy sand  
6 to 15 inches—pale brown sandy clay loam  
15 to 60 inches—light yellowish brown and very pale brown gravelly sandy loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Moderate

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Severe

### *Contrasting Inclusions*

Ornea, Mazuma, and Dors soils; soils that have slopes of more than 8 percent

### *Use and Management*

*Major use:* Rangeland

*Major management factors:* Hazard of wind erosion, risk of seepage

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass

*General management considerations:*

- The suitability of this map unit for range seeding is fair. Seeding is limited by the coarse texture of the upper layer.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.
- Seeding burned or disturbed areas helps to control blowing and drifting sand.
- Plants that can tolerate droughtiness are suitable for seeding.

### *Interpretive Groups*

*Land capability classification:* Vle, irrigated

*Range site:* Sandy Loam, 8- to 12-inch precipitation zone

### 2—Abgese loamy sand, 8 to 40 percent slopes

#### *Composition*

Abgese soil and similar inclusions—85 percent  
Contrasting inclusions—15 percent

**Setting**

*Position on landscape:* Alluvial plains, fan terraces

*Elevation:* About 3,300 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 130 days

**Characteristics of the Abgese Soil**

*Typical profile:*

0 to 6 inches—brown loamy sand

6 to 15 inches—pale brown sandy clay loam

15 to 60 inches—light yellowish brown and very pale brown gravelly sandy loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Moderate

*Potential rooting depth:* 60 inches or more

*Runoff:* Medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Severe

**Contrasting Inclusions**

Ornea, Dors, and Loray soils

**Use and Management**

*Major use:* Rangeland

*Major management factors:* Hazard of water erosion, hazard of wind erosion, risk of seepage, slope

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass

*General management considerations:*

- The suitability of this map unit for range seeding is fair. Seeding is limited by the slope and the coarse texture of the upper layer.
- Seeding the more favorable, less sloping areas of this map unit is difficult because of the pattern in which they occur with the less favorable, more sloping areas.
- Seeding burned or disturbed areas helps to control blowing and drifting sand.
- Plants that can tolerate droughtiness are suitable for seeding.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.

**Interpretive Groups**

*Land capability classification:* VIIe, nonirrigated

*Range site:* Sandy Loam, 8- to 12-inch precipitation zone

**3—Abgese sandy loam, 0 to 4 percent slopes****Composition**

Abgese soil and similar inclusions—80 percent

Contrasting inclusions—20 percent

**Setting**

*Position on landscape:* Terraces

*Elevation:* About 2,700 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 51 degrees F

*Frost-free season:* About 130 days

**Characteristics of the Abgese Soil**

*Typical profile:*

0 to 6 inches—brown sandy loam

6 to 15 inches—pale brown sandy clay loam

15 to 60 inches—light yellowish brown and very pale brown gravelly sandy loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Moderate

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

**Contrasting Inclusions**

Cowgil and Timmerman soils; soils that have slopes of more than 4 percent; soils that are similar to the Abgese soil but have more than 35 percent rock fragments in the lower part

**Use and Management**

*Major uses:* Irrigated cropland, rangeland

*Major management factors:* Hazard of wind erosion, risk of seepage, low precipitation

**Rangeland**

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation and the hazard of wind erosion.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation and the hazard of wind erosion.

- Plants that can tolerate droughtiness are suitable for seeding.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.

### **Cropland**

#### *General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- Suitable irrigation methods are sprinkler, furrow, and corrugation systems.
- Leveling is needed in sloping areas for efficient application and removal of irrigation water.
- Land smoothing that involves only shallow cuts helps to avoid exposing the coarse textured lower part of the soil.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Adjusting the rate at which irrigation water is applied helps to avoid overirrigating and the leaching of plant nutrients.
- The hazard of wind erosion is reduced by maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the surface of the soil rough.

### **Interpretive Groups**

*Land capability classification:* IIe, irrigated; VIc, nonirrigated

*Range site:* Sandy Loam, 8- to 12-inch precipitation zone

## **4—Arbidge fine sandy loam, 1 to 4 percent slopes**

### **Composition**

Arbidge soil and similar inclusions—80 percent  
Contrasting inclusions—20 percent

### **Setting**

*Position on landscape:* Alluvial plains, terraces

*Elevation:* About 3,100 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 51 degrees F

*Frost-free season:* About 130 days

### **Characteristics of the Arbidge Soil**

#### *Typical profile:*

- 0 to 8 inches—pale brown fine sandy loam
- 8 to 21 inches—light yellowish brown loam
- 21 to 27 inches—white fine sandy loam
- 27 to 34 inches—white hardpan

34 to 42 inches—white fine sandy loam

42 to 60 inches—very pale brown sandy loam

*Depth class:* Moderately deep

*Depth to hardpan (rippable):* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Moderate

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Truesdale, Scoon, Minidoka, Buko, and Jacquith soils

### **Use and Management**

*Major uses:* Irrigated cropland, rangeland

*Major management factors:* Depth to the hardpan, hazard of wind erosion, rooting depth, risk of seepage, low precipitation

### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Indian ricegrass, needleandthread

#### *General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation and the hazard of wind erosion.
- Plants that can tolerate droughtiness are suitable for seeding.
- Installation of pipelines is limited by depth to the hardpan.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.

### **Cropland**

#### *General management considerations:*

- Production of irrigated crops is limited by the rooting depth, the restricted available water capacity, and the hazard of wind erosion.
- The best suited irrigation method is a sprinkler system.
- The hazard of wind erosion is reduced by maintaining crop residue on the surface, planting field windbreaks, keeping tillage at a minimum, and keeping the surface of the soil rough.

### **Interpretive Groups**

*Land capability classification:* IIIs, irrigated; VIs, nonirrigated



*Range site:* Sandy Loam, 8- to 12-inch precipitation zone

## **5—Arbidge-Buko complex, 1 to 8 percent slopes**

### ***Composition***

Arbidge soil and similar inclusions—40 percent

Buko soil and similar inclusions—35 percent

Contrasting inclusions—25 percent

### ***Setting***

*Position on landscape:* Dissected alluvial terraces and plains

*Elevation:* About 3,400 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 120 days

### ***Characteristics of the Arbidge Soil***

#### ***Typical profile:***

0 to 8 inches—pale brown loam

8 to 21 inches—light yellowish brown loam

21 to 27 inches—white fine sandy loam

27 to 34 inches—white hardpan

34 to 42 inches—white fine sandy loam

42 to 60 inches—very pale brown sandy loam

*Depth class:* Moderately deep

*Depth to hardpan (rippable):* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Moderate

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### ***Characteristics of the Buko Soil***

#### ***Typical profile:***

0 to 7 inches—pale brown fine sandy loam

7 to 24 inches—very pale brown loam

24 to 28 inches—slightly cemented, variegated very gravelly sand

28 to 60 inches—variegated extremely cobbly sand

*Depth class:* Very deep

*Depth to very gravelly material:* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow in the upper 20 to 40 inches; rapid below this depth

*Available water capacity:* Low

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### ***Contrasting Inclusions***

Truesdale, Royal, Scoon, Power, Davey, and Owsel soils; soils that have slopes of more than 8 percent

### ***Use and Management***

*Major use:* Rangeland

*Major management factors:* Depth to the hardpan, depth to very gravelly material, hazard of wind erosion, hazard of water erosion, risk of seepage, restricted permeability, low precipitation

*Dominant vegetation in potential natural plant community:*

Arbidge soil—Wyoming big sagebrush, Thurber needlegrass; Buko soil—Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation and the hazard of wind erosion.
- Plants that can tolerate droughtiness are suitable for seeding.
- Loss of the upper layer results in a severe decrease in the potential of the soil to produce forage.
- Installation of pipelines is limited by depth to the hardpan in some areas.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.

### ***Interpretive Groups***

*Land capability classification:* Vle, nonirrigated

*Range site:* Arbidge soil—Loamy, 8- to 10-inch precipitation zone; Buko soil—Sandy Loam, 8- to 12-inch precipitation zone

## **6—Badge-Immiant-Rubble land complex, 20 to 70 percent slopes**

### ***Composition***

Badge soil and similar inclusions—35 percent

Immiant soil and similar inclusions—30 percent

Rubble land—15 percent

Contrasting inclusions—20 percent

### ***Setting***

*Position on landscape:* Foothills, south-facing valley sides

*Elevation:* About 4,900 feet

*Average annual precipitation:* About 14 inches

*Average annual air temperature:* About 47 degrees F

*Frost-free season:* About 90 days

### **Characteristics of the Badge Soil**

*Percent of rock fragments on the surface:* 20 percent pebbles

*Typical profile:*

0 to 3 inches—grayish brown gravelly loam

3 to 21 inches—brown gravelly loam

21 to 43 inches—pinkish gray very gravelly clay loam

43 to 54 inches—pinkish gray very stony clay loam

54 inches—unweathered bedrock

*Depth class:* Deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Moderate

*Potential rooting depth:* 40 to 60 inches

*Runoff:* Rapid

*Hazard of water erosion:* Severe

### **Characteristics of the Immiat Soil**

*Percent of rock fragments on the surface:* 20 percent pebbles and stones

*Typical profile:*

0 to 10 inches—brown gravelly loam

10 to 20 inches—yellowish brown gravelly clay loam

20 to 28 inches—dark yellowish brown cobbly clay loam

28 inches—bedrock

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Moderate

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Rapid

*Hazard of water erosion:* Severe

### **Characteristics of the Rubble Land**

*Position on landscape:* Convex areas near rock outcroppings and below escarpments

*Kind of material:* More than 90 percent loose surface boulders and stones

### **Contrasting Inclusions**

Oland, Brownlee, and Ruckles soils; Rock outcrop

### **Use and Management**

*Major use:* Rangeland

*Major management factors:* Rock fragments on surface, hazard of water erosion, moderately slow

permeability, slope, areas of Rubble land

*Dominant vegetation in potential natural plant community:*

Mountain big sagebrush, bluebunch wheatgrass

*General management considerations:*

- The use of forage by livestock is limited by the slope.

- The suitability of this map unit for range seeding is poor. Seeding is limited by the slope.

- The use of equipment is limited by the slope and by the rock fragments on the surface.

### **Interpretive Groups**

*Land capability classification:* VIIe, nonirrigated

*Range site:* Loamy, 12- to 16-inch precipitation zone

## **7—Bahem silt loam, 0 to 4 percent slopes**

### **Composition**

Bahem soil and similar inclusions—80 percent

Contrasting inclusions—20 percent

### **Setting**

*Position on landscape:* Alluvial plains, basalt plains

*Elevation:* About 3,000 feet

*Average annual precipitation:* About 8 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 130 days

### **Characteristics of the Bahem Soil**

*Typical profile:*

0 to 34 inches—pale brown silt loam

34 to 46 inches—pale brown very fine sandy loam

46 to 60 inches—light yellowish brown fine sandy loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Royal, Davey, Minidoka, and Scism soils; soils that have slopes of more than 4 percent; soils that are more than 20 percent durinodes between depths of 15 and 40 inches

### **Use and Management**

*Major uses:* Rangeland, irrigated cropland, homesites in a few areas

*Major management factors:* Hazard of wind erosion, low precipitation

### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation.
- Plants that can tolerate droughtiness are suitable for seeding.

### **Cropland**

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- Suitable irrigation methods are sprinkler, furrow, and corrugation systems.
- Leveling is needed in sloping areas for efficient application and removal of irrigation water.
- Surface drains are needed to remove tailwater if surface irrigation is used.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure help to reduce crusting of the surface.
- The hazard of wind erosion is reduced by maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the surface of the soil rough.

### **Interpretive Groups**

*Land capability classification:* IIe, irrigated; VIe, nonirrigated

*Range site:* Loamy, 8- to 10-inch precipitation zone

## **8—Bahem silt loam, 4 to 8 percent slopes**

### **Composition**

Bahem soil and similar inclusions—75 percent  
Contrasting inclusions—25 percent

### **Setting**

*Position on landscape:* Alluvial plains, basalt plains

*Elevation:* About 3,000 feet

*Average annual precipitation:* About 8 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 130 days

### **Characteristics of the Bahem Soil**

*Typical profile:*

0 to 34 inches—pale brown silt loam

34 to 46 inches—pale brown very fine sandy loam

46 to 60 inches—light yellowish brown fine sandy loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Scism, Royal, Minidoka, and Davey soils; soils that have slopes of less than 4 percent or more than 8 percent; soils that have bedrock at a depth of 40 to 60 inches; soils that are more than 20 percent durinodes between depths of 15 and 40 inches

### **Use and Management**

*Major uses:* Rangeland, irrigated cropland

*Major management factors:* Hazard of water erosion, hazard of wind erosion, low precipitation

### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation.
- Plants that can tolerate droughtiness are suitable for seeding.

### **Cropland**

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- The best suited irrigation method is a sprinkler system.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a

minimum increase the water intake rate and improve tilth.

- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- Keeping tillage at a minimum and maintaining a cloddy surface reduce the hazards of wind erosion and water erosion.

### ***Interpretive Groups***

*Land capability classification:* Ille, irrigated; VIe, nonirrigated

*Range site:* Loamy, 8- to 10-inch precipitation zone

## **9—Bahem-Minidoka-Trevino complex, 0 to 4 percent slopes**

### ***Composition***

Bahem soil and similar inclusions—45 percent  
Minidoka soil and similar inclusions—25 percent  
Trevino soil and similar inclusions—20 percent  
Contrasting inclusions—10 percent

### ***Setting***

*Position on landscape:* Basalt plains

*Elevation:* About 3,000 feet

*Average annual precipitation:* About 8 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 130 days

### ***Characteristics of the Bahem Soil***

*Position on landscape:* Side slopes

*Typical profile:*

- 0 to 34 inches—pale brown silt loam
- 34 to 46 inches—pale brown very fine sandy loam
- 46 to 60 inches—light yellowish brown fine sandy loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

### ***Characteristics of the Minidoka Soil***

*Position on landscape:* Broad ridges

*Typical profile:*

- 0 to 17 inches—brown silt loam

17 to 27 inches—white silt loam

27 to 43 inches—white, strongly cemented hardpan

43 to 60 inches—alternate layers of white silt loam and strongly cemented material (hardpan)

*Depth class:* Moderately deep

*Depth to hardpan (not rippable):* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Moderate

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

### ***Characteristics of the Trevino Soil***

*Position on landscape:* Near rock outcroppings; on ridges

*Typical profile:*

0 to 5 inches—pale brown stony loam

5 to 12 inches—pale brown loam

12 to 18 inches—very pale brown fine sandy loam

18 inches—fractured bedrock

*Depth class:* Shallow

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Low

*Potential rooting depth:* 10 to 20 inches

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

### ***Contrasting Inclusions***

Minveno, Purdam, Weso, and Power soils; soils that have slopes of more than 4 percent; Rock outcrop

### ***Use and Management***

*Major use:* Rangeland

*Major management factors:* Available water capacity, depth to the hardpan, depth to bedrock, hazard of wind erosion, low precipitation

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation.
- Plants that can tolerate droughtiness are suitable for seeding.
- Installation of pipelines is limited by depth to the hardpan in the Minidoka soil and by the depth to bedrock in the Trevino soil.

### ***Interpretive Groups***

*Land capability classification:* Vle, nonirrigated

*Range site:* Loamy, 8- to 10-inch precipitation zone

## **10—Baldock loam, 0 to 2 percent slopes**

### ***Composition***

Baldock soil and similar inclusions—80 percent

Contrasting inclusions—20 percent

### ***Setting***

*Position on landscape:* Flood plains

*Elevation:* About 2,400 feet

*Average annual precipitation:* About 7 inches

*Average annual air temperature:* About 53 degrees F

*Frost-free season:* About 145 days

### ***Characteristics of the Baldock Soil***

*Typical profile:*

0 to 7 inches—light brownish gray loam

7 to 12 inches—light brownish gray silt loam

12 to 42 inches—white loam

42 to 60 inches—very pale brown loam

*Depth class:* Very deep

*Drainage class:* Poorly drained

*Permeability:* Moderate

*Available water capacity:* High

*Restriction affecting rooting depth:* Water table at a depth of 18 to 36 inches from April through November

*Runoff:* Very slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

*Depth to water table:* 18 to 36 inches from April through November; more than 40 inches the rest of the year

*Frequency of flooding:* Rare

*Salinity:* Moderately saline

### ***Contrasting Inclusions***

Letha, Bramwell, Bram, and Grandview soils; artificially drained soils that are along Little Canyon Creek, north of Glenns Ferry; soils that have slopes of more than 2 percent; soils that are somewhat poorly drained; soils that are strongly saline

### ***Use and Management***

*Major uses:* Hayland, pasture, irrigated cropland, rangeland

*Major management factors:* Hazard of wind erosion, salinity, wetness

### ***Rangeland***

*Dominant vegetation in potential natural plant community:*

Black greasewood, inland saltgrass, basin wildrye

*General management considerations:*

- Forage production is limited mainly by salinity.
- The use of forage by livestock is limited by wetness.
- The suitability of this map unit for range seeding is poor. Seeding is limited by wetness and salinity.
- Grazing should be delayed until the soil is adequately drained and is firm enough to withstand trampling by livestock.

### ***Cropland***

*General management considerations:*

- Production of irrigated crops is limited by wetness and salinity.
- Suitable irrigation methods are sprinkler, furrow, and corrugation systems.
- Leveling is needed in sloping areas for efficient application and removal of irrigation water.
- Providing drainage is difficult in some areas because of poor outlets.
- Salt-tolerant crops can be grown if the content of salts in the soil is reduced by leaching.
- Subsurface drains can be used to reduce wetness if suitable outlets are available.
- Surface drains are needed to remove tailwater if surface irrigation is used.
- Regulating the applications of irrigation water helps to prevent a rise in the level of the water table and an increase in the concentration of salts and sodium in the soil.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- The hazard of wind erosion is reduced by maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the surface of the soil rough.
- Applying gypsum, leaching out the salts, applying sulfur or sulfuric acid, and growing green manure crops reduce the content of salts in the soil.

### ***Hayland and pasture***

*General management considerations:*

- Wetness limits the choice of plants and the period of cutting or grazing.



- Water-tolerant plants should be grown unless drainage is provided.
- Salt-tolerant grasses can be grown.
- Subsurface drains can be used to reduce wetness if suitable outlets are available.

### ***Interpretive Groups***

*Land capability classification:* IIIw, irrigated and nonirrigated

*Range site:* Semiwet Saline Meadow

## **11—Bram silt loam, 0 to 2 percent slopes**

### ***Composition***

Bram soil and similar inclusions—85 percent  
Contrasting inclusions—15 percent

### ***Setting***

*Position on landscape:* Flood plains, stream terraces

*Elevation:* About 2,400 feet

*Average annual precipitation:* About 7 inches

*Average annual air temperature:* About 53 degrees F

*Frost-free season:* About 145 days

### ***Characteristics of the Bram Soil***

*Typical profile:*

0 to 28 inches—very pale brown silt loam

28 to 36 inches—very pale brown very fine sandy loam

36 to 45 inches—very pale brown silt loam

45 to 65 inches—white loam

*Depth class:* Very deep

*Drainage class:* Somewhat poorly drained

*Permeability:* Moderately slow

*Available water capacity:* Moderate

*Restriction affecting rooting depth:* Water table at a depth of 36 to 60 inches from April through November

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

*Depth to water table:* 36 to 60 inches from April through November; more than 60 inches the rest of the year

*Frequency of flooding:* Rare

*Salinity:* Moderately saline

### ***Contrasting Inclusions***

Baldock, Bramwell, and Letha soils; soils that are moderately well drained; soils that are strongly saline

### ***Use and Management***

*Major uses:* Irrigated cropland, homesites in a few areas

*Minor use:* Livestock grazing in a few small areas (less than 10 percent of the map unit) that support native vegetation

*Major management factors:* Hazard of wind erosion, frost heaving, permeability, salinity, wetness

### ***Cropland***

*General management considerations:*

- Production of irrigated crops is limited by the seasonal high water table and by salinity.
- Suitable irrigation methods are sprinkler, furrow, and corrugation systems.
- Leveling is needed in sloping areas for efficient application and removal of irrigation water.
- Providing drainage is difficult in some areas because of poor outlets.
- If suitable outlets are available, subsurface drains can be used to remove excess water and leached salts.
- Salt-tolerant crops can be grown if the content of salts in the soil is reduced by leaching.
- Surface drains are needed to remove tailwater if surface irrigation is used.
- Regulating the applications of irrigation water helps to prevent a rise in the level of the water table and an increase in the concentration of salts and sodium in the soil.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- The hazard of wind erosion is reduced by maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the surface of the soil rough.
- Returning crop residue to the soil, carefully applying irrigation water, providing adequate drainage, applying gypsum, leaching out the salts, applying sulfur or sulfuric acid, and growing green manure crops reduce the content of salts.

### ***Building site development***

*General management consideration:*

- Septic tank absorption fields can be expected to function poorly because of the seasonal high water table.

### ***Interpretive Groups***

*Land capability classification:* IIIw, irrigated

## 12—Bramwell silty clay loam, 0 to 1 percent slopes

### **Composition**

Bramwell soil and similar inclusions—80 percent

Contrasting inclusions—20 percent

### **Setting**

*Position on landscape:* Stream terraces

*Elevation:* About 2,600 feet

*Average annual precipitation:* About 7 inches

*Average annual air temperature:* About 53 degrees F

*Frost-free season:* About 145 days

### **Characteristics of the Bramwell Soil**

*Typical profile:*

0 to 21 inches—white silty clay loam

21 to 44 inches—white silt loam

44 to 60 inches—stratified silt loam, loam, and fine sandy loam

*Depth class:* Very deep

*Drainage class:* Somewhat poorly drained

*Permeability:* Slow

*Available water capacity:* High

*Restriction affecting rooting depth:* Water table at a depth of 24 to 40 inches from May through September

*Runoff:* Very slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

*Depth to water table:* 24 to 40 inches from May through September; more than 40 inches the rest of the year

*Frequency of flooding:* Rare

*Salinity:* Moderately saline

### **Contrasting Inclusions**

Bram, Baldock, Grandview, and Garbutt soils

### **Use and Management**

*Major uses:* Irrigated cropland, hayland, pasture

*Minor use:* Livestock grazing in a few small areas (less than 10 percent of the map unit) that support native vegetation

*Major management factors:* Salinity, wetness, hazard of wind erosion, slow permeability

### **Cropland**

*General management considerations:*

- Production of irrigated crops is limited by wetness and salinity.
- Suitable irrigation methods are sprinkler, furrow, and corrugation systems.

- Providing drainage is difficult in some areas because of poor outlets.
- If suitable outlets are available, subsurface drains can be used to remove excess water and leached salts.
- Surface drains are needed to remove tailwater if surface irrigation is used.
- Regulating the applications of irrigation water helps to prevent a rise in the level of the water table and an increase in the concentration of salts and sodium in the soil.
- Because permeability is slow, adjusting the length of runs helps to ensure adequate infiltration of water.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- The hazard of wind erosion is reduced by maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the surface of the soil rough.
- Returning crop residue to the soil, carefully applying irrigation water, providing adequate drainage, applying gypsum, leaching out the salts, applying sulfur or sulfuric acid, and growing green manure crops reduce the content of salts.

### **Hayland and pasture**

*General management considerations:*

- Wetness limits the period of cutting or grazing.
- Salt-tolerant grasses can be grown.
- Water-tolerant plants should be grown unless drainage is provided.

### **Interpretive Groups**

*Land capability classification:* Illw, irrigated

## 13—Brinegar loam, 0 to 4 percent slopes

### **Composition**

Brinegar soil and similar inclusions—90 percent

Contrasting inclusions—10 percent

### **Setting**

*Position on landscape:* Low terraces

*Elevation:* About 5,100 feet

*Average annual precipitation:* About 15 inches

*Average annual air temperature:* About 41 degrees F

*Frost-free season:* About 65 days

### **Characteristics of the Brinegar Soil**

#### *Typical profile:*

- 0 to 21 inches—dark grayish brown loam
- 21 to 25 inches—very pale brown loam
- 25 to 31 inches—pale brown clay loam
- 31 to 47 inches—pale brown and light yellowish brown sandy clay loam
- 47 to 60 inches—very pale brown silty clay loam

*Depth class:* Very deep

*Drainage class:* Moderately well drained

*Permeability:* Moderately slow

*Available water capacity:* High

*Restriction affecting rooting depth:* Water table at a depth of 36 to 60 inches from February through June

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

*Depth to water table:* 36 to 60 inches from February through June; more than 60 inches the rest of the year

*Frequency of flooding:* Rare

### **Contrasting Inclusions**

Bauscher, Houk, and Simonton soils; soils that are similar to the Brinegar soil but are somewhat poorly drained

### **Use and Management**

*Major uses:* Nonirrigated cropland, pasture, rangeland

*Major management factors:* Flooding, moderately slow permeability

#### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Slender wheatgrass, tufted hairgrass, sedges

*General management considerations:*

- The suitability of this map unit for range seeding is good. Seeding is limited by wetness.
- Plants that can tolerate wetness are suitable for seeding.
- Because cold soil temperatures limit plant growth, grazing should be delayed until the soil has warmed and the forage plants have achieved sufficient growth.
- Grazing should be delayed until the soil is adequately drained and is firm enough to withstand trampling by livestock.

#### **Cropland**

*Yields per acre of nonirrigated crops:* Alfalfa hay and grass hay—2.5 tons; wheat—40 bushels; pasture—6 animal-unit-months

#### *General management considerations:*

- The short growing season limits the choice of suitable crops.
- The seasonal high water table provides supplemental moisture for plants.
- Supplemental irrigation is needed in years of limited precipitation. Sprinkler systems are best suited.
- Because of the moderately slow permeability of the clay loam layer, applications of water should be regulated so that water does not stand on the surface and damage the crops.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.

### **Interpretive Groups**

*Land capability classification:* IIIc, nonirrigated

*Range site:* Semiwet Meadow

## **14—Broad Canyon-Coski complex, 30 to 60 percent slopes**

### **Composition**

Broad Canyon soil and similar inclusions—50 percent

Coski soil and similar inclusions—30 percent

Contrasting inclusions—20 percent

### **Setting**

*Position on landscape:* North-facing mountainsides

*Elevation:* About 6,000 feet

*Average annual precipitation:* About 28 inches

*Average annual air temperature:* About 39 degrees F

*Frost-free season:* About 55 days

### **Characteristics of the Broad Canyon Soil**

*Thickness of organic mat on the surface:* 2 inches

#### *Typical profile:*

- 0 to 9 inches—grayish brown and brown gravelly sandy loam
- 9 to 15 inches—pale brown gravelly sandy loam
- 15 to 33 inches—light gray very gravelly coarse sandy loam
- 33 to 50 inches—light gray very gravelly loamy sand
- 50 inches—weathered bedrock

*Depth class:* Deep

*Drainage class:* Well drained

*Permeability:* Moderately rapid

*Available water capacity:* Low

*Potential rooting depth:* 40 to 60 inches

*Runoff:* Medium

*Hazard of water erosion:* Severe

### **Characteristics of the Coski Soil**

*Thickness of organic mat on the surface:* 1 inch

*Typical profile:*

0 to 11 inches—grayish brown gravelly coarse sandy loam

11 to 42 inches—pale brown and very pale brown gravelly coarse sandy loam

42 inches—unweathered bedrock

*Depth class:* Deep

*Drainage class:* Well drained

*Permeability:* Moderately rapid

*Available water capacity:* Low

*Potential rooting depth:* 40 to 60 inches

*Runoff:* Medium

*Hazard of water erosion:* Severe

### **Contrasting Inclusions**

Graylock soils; moderately deep soils that are similar to the Broad Canyon and Coski soils; Grousecreek soils on east and west aspects; shallow soils on ridges; soils that have slopes of less than 30 percent or more than 60 percent

### **Use and Management**

*Major uses:* Woodland, grazing land

*Major management factors:* Available water capacity, hazard of water erosion, slope

### **Woodland**

*Dominant vegetation in potential natural plant community:*

Broad Canyon soil—Douglas fir, white spirea, elk sedge; Coski soil—Douglas fir, Rocky Mountain maple, white spirea

*Mean site index for Douglas fir:* Broad Canyon soil—72; Coski soil—76

*Estimated average annual production per acre of*

*Douglas fir (commercial):* Broad Canyon and Coski soils—4,470 cubic feet from a stand of 40-year-old trees 6 inches or more in diameter or 29,780 board feet (Scribner rule) from a stand of 80-year-old trees 11.6 inches or more in diameter

*General management considerations:*

- The slope restricts the use of wheeled and tracked equipment on skid trails. Cable yarding and highlead logging generally are safer and cause less disturbance of the soil surface.
- Constructing roads at midslope results in large cuts

and fills and increases the risk of erosion.

- Cuts occasionally slump when saturated.
- Adequately designed road drainage systems reduce the risk of erosion.
- Steep yarding paths, skid trails, and firebreaks are subject to rilling and gullying. A plant cover or water bars are needed.
- The waste material from roadbuilding can damage vegetation. It is also a potential source of sedimentation.
- When openings are made in the canopy, invading brush can delay reforestation.
- Carefully managing reforestation and regeneration helps to control competition from less desirable understory plants and provides shade for seedlings.
- Adequate site preparation controls initial plant competition, and spraying controls the subsequent growth of less desirable plants.
- Trees suitable for planting include Douglas fir and ponderosa pine.
- Avoiding excessive disturbance of the soil, seeding roads, cuts, and landings, and installing water bars and culverts reduce the hazard of erosion.
- Spraying, cutting, or girdling eliminates unwanted weeds, brush, or trees.
- Thinning before trees reach commercial size and selectively cutting mature trees improve the stands.

### **Grazable understory**

*Common forest understory plants:* Broad Canyon soil—white spirea, serviceberry, Rocky Mountain maple, elk sedge, sweet cicely; Coski soil—Rocky Mountain maple, white spirea, Oregon grape, elk sedge, groundsel, Solomons-seal

*Potential production of air-dry vegetation per acre:* Broad Canyon soil—500 to 1,000 pounds; Coski soil—400 to 800 pounds

*General management considerations:*

- When the timber stand reaches potential growth (more than 70 percent canopy), the understory is sparse and has little value as forage. When the overstory is less dense, the understory provides good forage.
- Recently burned or logged areas can be grazed until competition from trees eliminates the forage.
- Seeding disturbed areas to suitable plants increases forage production.
- Grazing should be deferred until tree seedlings are well established.

### **Interpretive Groups**

*Land capability classification:* VIIe, nonirrigated

## **15—Broad Canyon-Grousecreek association, 20 to 70 percent slopes**

### **Composition**

Broad Canyon soil and similar inclusions—45 percent  
Grousecreek soil and similar inclusions—30 percent  
Contrasting inclusions—25 percent

### **Setting**

*Position on landscape:* Mountainsides  
*Elevation:* About 5,800 feet  
*Average annual precipitation:* About 27 inches  
*Average annual air temperature:* About 40 degrees F  
*Frost-free season:* About 60 days

### **Characteristics of the Broad Canyon Soil**

*Position on landscape:* North-facing mountainsides  
*Slope:* 30 to 70 percent  
*Thickness of organic mat on the surface:* 2 inches  
*Typical profile:*  
0 to 9 inches—grayish brown and brown gravelly sandy loam  
9 to 15 inches—pale brown gravelly sandy loam  
15 to 33 inches—light gray very gravelly coarse sandy loam  
33 to 50 inches—light gray very gravelly loamy sand  
50 inches—weathered bedrock  
*Depth class:* Deep  
*Drainage class:* Well drained  
*Permeability:* Moderately rapid  
*Available water capacity:* Low  
*Potential rooting depth:* 40 to 60 inches  
*Runoff:* Medium or rapid  
*Hazard of water erosion:* Severe

### **Characteristics of the Grousecreek Soil**

*Position on landscape:* East- and west-facing mountainsides  
*Slope:* 20 to 70 percent  
*Thickness of organic mat on the surface:* 1 inch  
*Typical profile:*  
0 to 12 inches—grayish brown gravelly sandy loam  
12 to 32 inches—very pale brown very gravelly sandy loam  
32 to 50 inches—very pale brown extremely gravelly loamy sand  
50 inches—unweathered bedrock  
*Depth class:* Deep  
*Drainage class:* Well drained  
*Permeability:* Moderately rapid  
*Available water capacity:* Low

*Potential rooting depth:* 40 to 60 inches  
*Runoff:* Medium or rapid  
*Hazard of water erosion:* Severe

### **Contrasting Inclusions**

Moderately deep soils that are similar to the Broad Canyon and Grousecreek soils; Switchback soils on south-facing slopes; Coski soils on north-facing slopes; Elkcreek, Demast, and Gaib soils in the Bennett Mountain area; Roanhide and Bauscher soils that are on south-facing slopes and support shrubs and grasses; shallow soils on ridges

### **Use and Management**

*Major uses:* Woodland, grazing land  
*Major management factors:* Available water capacity, hazard of water erosion

### **Woodland**

*Dominant vegetation in potential natural plant community:*  
Broad Canyon soil—Douglas fir, mallow ninebark;  
Grousecreek soil—Douglas fir, white spirea, elk sedge  
*Mean site index for Douglas fir:* Broad Canyon soil—85;  
Grousecreek soil—65  
*Estimated average annual production per acre of Douglas fir (commercial):* Broad Canyon soil—4,470 cubic feet from a stand of 40-year-old trees 6 inches or more in diameter or 29,780 board feet (Scribner rule) from a stand of 80-year-old trees 11.6 inches or more in diameter; Grousecreek soil—3,400 cubic feet from a stand of 40-year-old trees 6 inches or more in diameter or 18,500 board feet (Scribner rule) from a stand of 80-year-old trees 11.6 inches or more in diameter  
*General management considerations:*  
• Wheeled and tracked equipment can be used in the more gently sloping areas, but cable yarding generally is safer and results in less disturbance of the soil surface.  
• Constructing roads at midslope results in large cuts and fills and increases the risk of erosion.  
• Cuts occasionally slump when saturated.  
• Adequately designed road drainage systems reduce the risk of erosion.  
• Steep yarding paths, skid trails, and firebreaks are subject to rilling and gullyng. A plant cover or water bars are needed.  
• The waste material from roadbuilding can damage vegetation. It is also a potential source of sedimentation.

- Reforestation is difficult on the drier, south-facing slopes.
- Carefully managing reforestation and regeneration helps to control competition from less desirable understory plants and provides shade for seedlings.
- Adequate site preparation controls initial plant competition, and spraying controls the subsequent growth of less desirable plants.
- Trees suitable for planting include Douglas fir and ponderosa pine.
- Avoiding excessive disturbance of the soil, seeding roads, cuts, and landings, and installing water bars and culverts reduce the risk of erosion.
- Spraying, cutting, or girdling eliminates unwanted weeds, brush, or trees.
- Selecting suitable species helps to ensure the establishment and survival of seedlings.
- Maintaining some of the larger trees in the stands provides shade for seedlings.
- Thinning before trees reach commercial size and selectively cutting mature trees improve the stands.

#### **Grazable understory**

*Common forest understory plants:* Broad Canyon soil—mallow ninebark, Rocky Mountain maple, white spirea, serviceberry, sweet cicely, elk sedge; Grousecreek soil—white spirea, serviceberry, Oregon grape, heartleaf arnica, geranium, elk sedge  
*Potential production of air-dry vegetation per acre:* Broad Canyon and Grousecreek soils—500 to 1,000 pounds

#### *General management considerations:*

- When the timber stand reaches potential growth (more than 70 percent canopy), the understory is sparse and has little value as forage. When the overstory is less dense, the understory provides good forage.
- Recently burned or logged areas can be grazed until competition from trees eliminates the forage.
- Seeding disturbed areas to suitable plants increases forage production.
- Grazing should be deferred until tree seedlings are well established.

#### **Interpretive Groups**

*Land capability classification:* VIIe

### **16—Broad Canyon-Switchback association, 30 to 70 percent slopes**

#### **Composition**

Broad Canyon soil and similar inclusions—50 percent

Switchback soil and similar inclusions—30 percent  
 Contrasting inclusions—20 percent

#### **Setting**

*Position on landscape:* Mountainsides

*Elevation:* About 6,000 feet

*Average annual precipitation:* About 27 inches

*Average annual air temperature:* About 40 degrees F

*Frost-free season:* About 60 days

#### **Characteristics of the Broad Canyon Soil**

*Position on landscape:* North-facing mountainsides

*Thickness of organic mat on the surface:* 2 inches

*Typical profile:*

- 0 to 9 inches—grayish brown and brown gravelly sandy loam
- 9 to 15 inches—pale brown gravelly sandy loam
- 15 to 33 inches—light gray very gravelly coarse sandy loam
- 33 to 50 inches—light gray very gravelly loamy sand
- 50 inches—weathered bedrock

*Depth class:* Deep

*Drainage class:* Well drained

*Permeability:* Moderately rapid

*Available water capacity:* Low

*Potential rooting depth:* 40 to 60 inches

*Runoff:* Medium or rapid

*Hazard of water erosion:* Severe

#### **Characteristics of the Switchback Soil**

*Position on landscape:* East-, west-, and south-facing mountainsides

*Typical profile:*

- 0 to 11 inches—light brownish gray and pale brown sandy loam
- 11 to 37 inches—very pale brown gravelly sandy loam
- 37 inches—weathered bedrock

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Low

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Medium or rapid

*Hazard of water erosion:* Severe

#### **Contrasting Inclusions**

Moderately deep soils that are similar to the Broad Canyon soil; Grousecreek soils on east- and north-facing slopes; Quartzburg and Wagontown soils on south-facing slopes; Coski soils on north-facing slopes



### **Use and Management**

*Major uses:* Woodland, grazing land

*Major management factors:* Available water capacity, hazard of water erosion, slope, cooler soil temperatures on north-facing slopes

#### **Woodland**

*Dominant vegetation in potential natural plant community:*

Broad Canyon soil—Douglas fir, mallow ninebark;

Switchback soil—ponderosa pine, mountain snowberry

*Mean site index for Douglas fir on the Broad Canyon soil:* 85

*Estimated average annual production per acre of*

*Douglas fir (commercial):* Broad Canyon soil—4,470 cubic feet from a stand of 40-year-old trees 6 inches or more in diameter or 29,780 board feet (Scribner rule) from a stand of 80-year-old trees 11.6 inches or more in diameter

*Mean site index for ponderosa pine on the Switchback soil:* 70

*Estimated average annual production per acre of*

*ponderosa pine (commercial):* Switchback soil—4,100 cubic feet from a stand of 40-year-old trees 6 inches or more in diameter or 26,000 board feet (Scribner rule) from a stand of 80-year-old trees 11.6 inches or more in diameter

*General management considerations:*

- The slope restricts the use of wheeled and tracked equipment on skid trails. Cable yarding generally is safer and results in less disturbance of the soil surface.
- The upper part of the profile is loose when dry, which limits the use of wheeled and tracked equipment.
- Constructing roads at midslope results in large cuts and fills and increases the risk of erosion.
- Cuts occasionally slump when saturated.
- Adequately designed road drainage systems reduce the risk of erosion.
- Steep yarding paths, skid trails, and firebreaks are subject to rilling and gullyng. A plant cover or water bars are needed.
- The waste material from roadbuilding can damage vegetation. It is also a potential source of sedimentation.
- Reforestation is difficult on the drier, south-facing slopes.
- When openings are made in the canopy, invading brush can delay reforestation.
- High soil temperatures and low soil moisture content during the growing season result in a high seedling mortality rate, especially on south- and southwest-facing slopes.

- Carefully managing reforestation and regeneration helps to control competition from less desirable understory plants and provides shade for seedlings.
- Adequate site preparation controls initial plant competition, and spraying controls the subsequent growth of less desirable plants.
- Trees suitable for planting include Douglas fir and ponderosa pine.
- Avoiding excessive disturbance of the soil, seeding roads, cuts, and landings, and installing water bars and culverts reduce the risk of erosion.
- Spraying, cutting, or girdling eliminates unwanted weeds, brush, or trees.
- Selecting suitable species helps to ensure the establishment and survival of seedlings.
- Maintaining some of the larger trees in the stands provides shade for seedlings.
- Thinning before trees reach commercial size and selectively cutting mature trees improve the stands.

#### **Grazable understory**

*Common forest understory plants:* Broad Canyon soil—mallow ninebark, Rocky Mountain maple, white spirea, serviceberry, sweet cicely, elk sedge; Switchback soil—mountain snowberry, chokecherry, serviceberry, Oregon grape, elk sedge

*Potential production of air-dry vegetation per acre:* Broad Canyon soil—500 to 1,000 pounds; Switchback soil—400 to 800 pounds

*General management considerations:*

- Because the overstory on the Switchback soil generally is open, enough light reaches the ground for good growth of understory plants.
- When the timber stand reaches potential growth (more than 70 percent canopy), the understory is sparse and has little value as forage. When the overstory is less dense, the understory provides good forage.
- Recently burned or logged areas can be grazed until competition from trees eliminates the forage.
- Seeding disturbed areas to suitable plants increases forage production.
- Grazing should be deferred until tree seedlings are well established.

### **Interpretive Groups**

*Land capability classification:* VIIe, nonirrigated

## **17—Brownlee loam, 2 to 12 percent slopes**

### **Composition**

Brownlee soil and similar inclusions—85 percent

Contrasting inclusions—15 percent

### **Setting**

*Position on landscape:* Foothills, terraces

*Elevation:* About 4,300 feet

*Average annual precipitation:* About 15 inches

*Average annual air temperature:* About 47 degrees F

*Frost-free season:* About 90 days

### **Characteristics of the Brownlee Soil**

*Typical profile:*

0 to 10 inches—brown loam

10 to 28 inches—pale brown and light yellowish brown loam

28 to 48 inches—reddish yellow clay loam

48 to 54 inches—reddish yellow sandy clay loam

54 to 60 inches—pink gravelly sandy clay loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Immiant and Rainey soils; soils that have slopes of more than 12 percent; soils in depressional areas that are moderately well drained

### **Use and Management**

*Major use:* Rangeland

*Major management factor:* Hazard of water erosion

*Dominant vegetation in potential natural plant community:*

Mountain big sagebrush, bluebunch wheatgrass

*General management considerations:*

• The suitability of this map unit for range seeding is good. Seeding is limited by the hazard of water erosion in the steeper areas.

### **Interpretive Groups**

*Land capability classification:* IIIe, nonirrigated

*Range site:* Loamy, 12- to 16-inch precipitation zone

## **18—Brownlee-Immiant complex, 2 to 20 percent slopes**

### **Composition**

Brownlee soil and similar inclusions—45 percent

Immiant soil and similar inclusions—30 percent

Contrasting inclusions—25 percent

### **Setting**

*Position on landscape:* Foothills

*Elevation:* About 4,600 feet

*Average annual precipitation:* About 15 inches

*Average annual air temperature:* About 46 degrees F

*Frost-free season:* About 90 days

### **Characteristics of the Brownlee Soil**

*Typical profile:*

0 to 10 inches—brown silt loam

10 to 28 inches—pale brown and light yellowish brown loam

28 to 48 inches—reddish yellow clay loam

48 to 54 inches—reddish yellow sandy clay loam

54 to 60 inches—pink gravelly sandy clay loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Characteristics of the Immiant Soil**

*Typical profile:*

0 to 10 inches—brown gravelly loam

10 to 20 inches—yellowish brown gravelly clay loam

20 to 28 inches—dark yellowish brown cobbly clay loam

28 inches—unweathered bedrock

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Moderate

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Oland and Ruckles soils; Bauscher soils on steep north- and east-facing slopes; Rock outcrop; soils that are more than 35 percent rock fragments throughout; soils that have slopes of more than 20 percent

### **Use and Management**

*Major use:* Rangeland

*Major management factors:* Depth to bedrock, hazard of water erosion

*Dominant vegetation in potential natural plant community:*

Mountain big sagebrush, bluebunch wheatgrass

*General management considerations:*

- The suitability of this map unit for range seeding is good. Seeding is limited by the hazard of water erosion in the steeper areas.

**Interpretive Groups**

*Land capability classification:* IVe, nonirrigated

*Range site:* Loamy, 12- to 16-inch precipitation zone

## 19—Brownlee-Van Dusen loams, 2 to 20 percent slopes

**Composition**

Brownlee soil and similar inclusions—45 percent

Van Dusen soil and similar inclusions—30 percent

Contrasting inclusions—25 percent

**Setting**

*Position on landscape:* Foothills, terraces

*Elevation:* About 4,500 feet

*Average annual precipitation:* About 15 inches

*Average annual air temperature:* About 47 degrees F

*Frost-free season:* About 95 days

**Characteristics of the Brownlee Soil***Typical profile:*

0 to 10 inches—brown loam

10 to 28 inches—pale brown and light yellowish brown loam

28 to 48 inches—reddish yellow clay loam

48 to 54 inches—reddish yellow sandy clay loam

54 to 60 inches—pink gravelly sandy clay loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

**Characteristics of the Van Dusen Soil***Typical profile:*

0 to 21 inches—grayish brown and brown loam

21 to 40 inches—yellowish brown clay loam

40 to 60 inches—very pale brown sandy loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

**Contrasting Inclusions**

Immiant and Rainey soils; soils that are moderately well drained; Rock outcrop; soils that have slopes of more than 20 percent

**Use and Management**

*Major use:* Rangeland

*Major management factor:* Hazard of water erosion

*Dominant vegetation in potential natural plant community:*

Mountain big sagebrush, bluebunch wheatgrass

*General management considerations:*

- The suitability of this map unit for range seeding is good. Seeding is limited by the hazard of water erosion in the steeper areas.

**Interpretive Groups**

*Land capability classification:* IVe, nonirrigated

*Range site:* Loamy, 12- to 16-inch precipitation zone

## 20—Bruncan-Troughs complex, 0 to 5 percent slopes

**Composition**

Bruncan soil and similar inclusions—50 percent

Troughs soil and similar inclusions—30 percent

Contrasting inclusions—20 percent

**Setting**

*Position on landscape:* Basalt plains

*Elevation:* About 3,800 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 49 degrees F

*Frost-free season:* About 110 days

**Characteristics of the Bruncan Soil**

*Percent of rock fragments on the surface:* 15 to 30 percent stones

*Typical profile:*

0 to 3 inches—very pale brown extremely stony loam

3 to 12 inches—light yellowish brown gravelly loam

12 to 15 inches—light gray very gravelly loam

15 to 27 inches—pinkish white, very strongly cemented hardpan

27 inches—unweathered bedrock

*Depth class:* Shallow

*Depth to hardpan (not rippable):* 11 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Low

*Potential rooting depth:* 10 to 20 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Slight

### **Characteristics of the Troughs Soil**

*Percent of rock fragments on the surface:* 15 to 30 percent stones

*Typical profile:*

0 to 4 inches—light brownish gray extremely stony silt loam

4 to 11 inches—white cobbly clay loam

11 to 15 inches—pale brown very gravelly clay loam

15 to 22 inches—very pale brown, strongly cemented hardpan

22 to 36 inches—very pale brown very gravelly loam

36 inches—unweathered bedrock

*Depth class:* Shallow

*Depth to hardpan (not rippable):* 15 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Low

*Potential rooting depth:* 15 to 20 inches

*Runoff:* Slow

*Hazard of water erosion:* Slight

### **Contrasting Inclusions**

Shoofly, McKeeth, and Sidlake soils; soils that have slopes of more than 5 percent

### **Use and Management**

*Major use:* Rangeland

*Major management factors:* Available water capacity, stones on the surface, depth to bedrock, low precipitation

*Dominant vegetation in potential natural plant community:*

Low sagebrush, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation, low available water capacity, and limited rooting depth.
- The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation and the stones on the surface.
- Rock fragments on the surface limit the use of equipment.

- Loss of the upper layer results in a severe decrease in the potential of the soil to produce forage.
- Installation of pipelines and fences is limited by depth to the hardpan and to bedrock.

### **Interpretive Groups**

*Land capability classification:* VIs, nonirrigated

*Range site:* Shallow Stony, 8- to 12-inch precipitation zone

## **21—Buko fine sandy loam, 1 to 4 percent slopes**

### **Composition**

Buko soil and similar inclusions—75 percent

Contrasting inclusions—25 percent

### **Setting**

*Position on landscape:* Fan terraces, stream terraces

*Elevation:* About 3,000 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 51 degrees F

*Frost-free season:* About 130 days

### **Characteristics of the Buko Soil**

*Typical profile:*

0 to 7 inches—pale brown fine sandy loam

7 to 24 inches—very pale brown loam

24 to 28 inches—slightly cemented, variegated very gravelly sand

28 to 60 inches—variegated extremely cobbly sand

*Depth class:* Very deep

*Depth to very gravelly material:* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow in the upper 20 to 40 inches; rapid below this depth

*Available water capacity:* Moderate

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Royal, Davey, Truesdale, and Arbidge soils

### **Use and Management**

*Major uses:* Rangeland, irrigated cropland, homesites in a few areas

*Major management factors:* Available water capacity, hazard of wind erosion, depth to very gravelly

material, risk of seepage, low precipitation

### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation and the hazard of wind erosion.
- Plants that can tolerate droughtiness are suitable for seeding.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.

### **Cropland**

*General management considerations:*

- Production of irrigated crops is limited by the available water capacity and the hazard of wind erosion.
- Suitable irrigation methods are sprinkler, furrow, and corrugation systems.
- Leveling is needed in sloping areas for efficient application and removal of irrigation water.
- Land smoothing that involves only shallow cuts helps to avoid exposing the very gravelly material.
- The very gravelly material at a depth of 20 to 40 inches restricts the growth of deep-rooted plants.
- Surface drains are needed to remove tailwater if surface irrigation is used.
- Regulating the rate at which irrigation water is applied helps to avoid overirrigating and the leaching of plant nutrients.
- The hazard of wind erosion is reduced by maintaining crop residue on the surface, planting field windbreaks, keeping tillage at a minimum, and keeping the surface of the soil rough.

### **Building site development**

*General management considerations:*

- Cutbanks are not stable and therefore are subject to slumping.
- This map unit is a good source of roadfill.
- This map unit is limited as a site for septic tank absorption fields because of the rapid permeability, which causes poor filtration of the effluent and can result in pollution of the water supply.
- Onsite investigation is needed to locate areas suitable for use as sites for septic tank absorption fields.

### **Interpretive Groups**

*Land capability classification:* IIIe, irrigated; VIi, nonirrigated

*Range site:* Sandy Loam, 8- to 12-inch precipitation zone

## **22—Buko fine sandy loam, 4 to 12 percent slopes**

### **Composition**

Buko soil and similar inclusions—75 percent  
Contrasting inclusions—25 percent

### **Setting**

*Position on landscape:* Dissected fan terraces

*Elevation:* About 3,000 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 51 degrees F

*Frost-free season:* About 130 days

### **Characteristics of the Buko Soil**

*Typical profile:*

0 to 7 inches—pale brown fine sandy loam

7 to 24 inches—very pale brown loam

24 to 28 inches—slightly cemented, variegated very gravelly sand

28 to 60 inches—variegated extremely cobbly sand

*Depth class:* Very deep

*Depth to very gravelly material:* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow in the upper 20 to 40 inches; rapid below this depth

*Available water capacity:* Moderate

*Potential rooting depth:* 60 inches or more

*Runoff:* Medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Royal, Davey, Arbidge, Truesdale, and Scoon soils; soils that have slopes of less than 4 percent

### **Use and Management**

*Major use:* Rangeland

*Major management factors:* Hazard of wind erosion, hazard of water erosion, risk of seepage, low precipitation

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is

fair. Seeding is limited by low precipitation and the hazard of wind erosion.

- Plants that can tolerate droughtiness are suitable for seeding.
- Loss of the upper layer results in a severe decrease in the potential of the soil to produce forage.

### ***Interpretive Groups***

*Land capability classification:* VIe, nonirrigated

*Range site:* Sandy Loam, 8- to 12-inch precipitation zone

## **23—Chardoton silt loam, 0 to 4 percent slopes**

### ***Composition***

Chardoton soil and similar inclusions—80 percent

Contrasting inclusions—20 percent

### ***Setting***

*Position on landscape:* Alluvial plains, fan terraces

*Elevation:* About 3,000 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 130 days

### ***Characteristics of the Chardoton Soil***

*Typical profile:*

0 to 4 inches—pale brown silt loam

4 to 8 inches—light gray loam

8 to 35 inches—pale brown and light yellowish brown silty clay

35 to 41 inches—very pale brown silty clay loam

41 to 55 inches—white loam

55 to 60 inches—pinkish white hardpan

*Depth class:* Deep

*Depth to hardpan (rippable):* 40 to 60 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* High

*Potential rooting depth:* 40 to 60 inches

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

### ***Contrasting Inclusions***

Chilcott, Power, and Purdam soils; soils that have slopes of more than 4 percent

### ***Use and Management***

*Major uses:* Irrigated cropland, rangeland, homesites in a few areas

*Major management factors:* Hazard of wind erosion, permeability, potential for shrinking and swelling, low precipitation

### ***Rangeland***

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation.
- Plants that can tolerate droughtiness are suitable for seeding.

### ***Cropland***

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- Suitable irrigation methods are sprinkler, furrow, and corrugation systems.
- Leveling is needed in sloping areas for efficient application and removal of irrigation water.
- Surface drains are needed to remove tailwater if surface irrigation is used.
- Because permeability is slow, adjusting the length of runs helps to ensure adequate infiltration of water.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- The hazard of wind erosion is reduced by maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the surface of the soil rough.

### ***Building site development***

*General management considerations:*

- Shrinking and swelling adversely affect the quality of roadbeds and road surfaces.
- Septic tank absorption fields can be expected to function poorly because of limited permeability, which restricts the movement and filtration of the effluent.
- Onsite investigation is needed to locate areas suitable for use as sites for septic tank absorption fields.

### ***Interpretive Groups***

*Land capability classification:* IIe, irrigated; VIs, nonirrigated

*Range site:* Loamy, 8- to 10-inch precipitation zone



## 24—Chilcott silt loam, 0 to 4 percent slopes

### **Composition**

Chilcott soil and similar inclusions—85 percent

Contrasting inclusions—15 percent

### **Setting**

*Position on landscape:* Alluvial plains, basalt plains

*Elevation:* About 3,400 feet

*Average annual precipitation:* About 10 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 120 days

### **Characteristics of the Chilcott Soil**

#### *Typical profile:*

0 to 7 inches—light brownish gray and light gray silt loam

7 to 17 inches—brown silty clay

17 to 27 inches—light yellowish brown clay loam

27 to 33 inches—very pale brown loam

33 to 39 inches—white, very strongly cemented hardpan

39 to 67 inches—alternate layers of strongly cemented material (hardpan) and loam

*Depth class:* Moderately deep

*Depth to hardpan (not rippable):* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Moderate

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Chardoton, Colthorp, Elijah, and Purdam soils; soils that have slopes of more than 4 percent

### **Use and Management**

*Major uses:* Rangeland, irrigated cropland, homesites in a few areas

*Major management factors:* Depth to the hardpan, hazard of wind erosion, permeability, potential for shrinking and swelling, slope, low precipitation

#### **Rangeland**

*Dominant vegetation in potential natural plant community:* Wyoming big sagebrush, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is

fair. Seeding is limited by low precipitation.

- Plants that can tolerate droughtiness are suitable for seeding.
- Installation of pipelines is limited by depth to the hardpan.

#### **Cropland**

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- Suitable irrigation methods are sprinkler, furrow, and corrugation systems.
- Leveling is needed in sloping areas for efficient application and removal of irrigation water.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- The hazard of wind erosion is reduced by maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the surface of the soil rough.

#### **Building site development**

*General management considerations:*

- Excavation is hampered by the limited depth to the hardpan. Heavy equipment is needed.
- Shrinking and swelling adversely affect the quality of roadbeds and road surfaces.
- Septic tank absorption fields can be expected to function poorly because of the depth to the hardpan and the restricted permeability of the soil.
- Onsite investigation is needed to locate areas suitable for use as sites for septic tank absorption fields.

#### **Interpretive Groups**

*Land capability classification:* IIIs, irrigated; VIs, nonirrigated

*Range site:* Loamy, 8- to 10-inch precipitation zone

## 25—Chilcott very stony silty clay loam, 0 to 12 percent slopes

### **Composition**

Chilcott soil and similar inclusions—75 percent

Contrasting inclusions—25 percent

### **Setting**

*Position on landscape:* Basalt plains

*Elevation:* About 3,600 feet

*Average annual precipitation:* About 11 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 120 days

### **Characteristics of the Chilcott Soil**

*Percent of rock fragments on the surface:* 3 to 15 percent stones

*Typical profile:*

0 to 7 inches—very pale brown very stony silty clay loam

7 to 17 inches—yellowish brown silty clay

17 to 20 inches—yellowish brown silty clay loam

20 to 33 inches—very pale brown silt loam

33 to 39 inches—white, very strongly cemented hardpan

39 to 67 inches—alternate layers of strongly cemented material (hardpan) and very fine sandy loam and loam

*Depth class:* Moderately deep

*Depth to hardpan (not rippable):* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Moderate

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Elijah, Colthorp, Lanktree, Kunaton, and Sebree soils;  
Rubble land; soils that have slopes of more than 12 percent

### **Use and Management**

*Major use:* Rangeland

*Major management factors:* Stones on the surface, depth to the hardpan, hazard of water erosion, hazard of wind erosion, permeability, low precipitation

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, bluebunch wheatgrass, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is

fair. Seeding is limited by low precipitation and the stones on the surface.

- Plants that can tolerate droughtiness are suitable for seeding.
- Installation of pipelines is limited by depth to the hardpan.

### **Interpretive Groups**

*Land capability classification:* VIe, nonirrigated

*Range site:* Loamy, 10- to 12-inch precipitation zone

## **26—Chilcott-Day-Rock outcrop complex, 2 to 15 percent slopes**

### **Composition**

Chilcott soil and similar inclusions—35 percent

Day soil and similar inclusions—25 percent

Rock outcrop—15 percent

Contrasting inclusions—25 percent

### **Setting**

*Position on landscape:* Basalt plains, terraces

*Elevation:* About 3,500 feet

*Average annual precipitation:* About 11 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 120 days

### **Characteristics of the Chilcott Soil**

*Percent of rock fragments on the surface:* 3 to 15 percent stones

*Typical profile:*

0 to 7 inches—very pale brown very stony silty clay loam

7 to 17 inches—yellowish brown silty clay

17 to 20 inches—yellowish brown silty clay loam

20 to 33 inches—very pale brown silt loam

33 to 39 inches—white, very strongly cemented hardpan

39 to 67 inches—alternate layers of strongly cemented material (hardpan) and very fine sandy loam and loam

*Depth class:* Moderately deep

*Depth to hardpan (not rippable):* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Moderate

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Characteristics of the Day Soil**

*Percent of rock fragments on the surface:* 3 to 15 percent stones

*Typical profile:*

0 to 6 inches—brown very stony silty clay

6 to 40 inches—brown silty clay

40 to 65 inches—pale brown silty clay loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Very slow

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Medium

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

### **Characteristics of the Rock Outcrop**

*Kind of material:* Exposed basalt or rhyolite that is fractured in some places

### **Contrasting Inclusions**

Karcas, Ruckles, Kunaton, and Chardoton soils; Rubble land; soils that have slopes of more than 15 percent

### **Use and Management**

*Major use:* Rangeland

*Major management factors:* Available water capacity, stones on the surface, hazard of water erosion, hazard of wind erosion, permeability, rooting depth, low precipitation, areas of Rock outcrop

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, bluebunch wheatgrass,

Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation and the stones on the surface.
- Plants that can tolerate droughtiness are suitable for seeding.
- Installation of pipelines is limited by depth to the hardpan in some areas and by the areas of Rock outcrop.

### **Interpretive Groups**

*Land capability classification:* Vle, nonirrigated

*Range site:* Loamy, 10- to 12-inch precipitation zone

## **27—Chilcote-Elijah silt loams, 0 to 12 percent slopes**

### **Composition**

Chilcote soil and similar inclusions—50 percent

Elijah soil and similar inclusions—25 percent

Contrasting inclusions—25 percent

### **Setting**

*Position on landscape:* Alluvial plains, basalt plains

*Elevation:* About 3,800 feet

*Average annual precipitation:* About 10 inches

*Average annual air temperature:* About 49 degrees F

*Frost-free season:* About 115 days

### **Characteristics of the Chilcote Soil**

*Typical profile:*

0 to 7 inches—light brownish gray and light gray silt loam

7 to 17 inches—brown silty clay

17 to 27 inches—light yellowish brown clay loam

27 to 33 inches—very pale brown loam

33 to 39 inches—white, very strongly cemented hardpan

39 to 67 inches—alternate layers of strongly cemented material (hardpan) and loam

*Depth class:* Moderately deep

*Depth to hardpan (not rippable):* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Moderate

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Characteristics of the Elijah Soil**

*Typical profile:*

0 to 7 inches—pale brown silt loam

7 to 21 inches—brown and light brown silty clay loam

21 to 30 inches—light gray and pink loam

30 to 41 inches—white, strongly cemented hardpan

41 to 60 inches—very pale brown fine sandy loam

*Depth class:* Moderately deep

*Depth to hardpan (not rippable):* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Moderate  
*Potential rooting depth:* 20 to 40 inches  
*Runoff:* Slow or medium  
*Hazard of water erosion:* Moderate  
*Hazard of wind erosion:* Moderate

### ***Contrasting Inclusions***

Colthorp, Purdam, Lanktree, Power, and Sebree soils;  
 soils that have slopes of more than 12 percent

### ***Use and Management***

*Major uses:* Rangeland, irrigated cropland, homesites in a few areas

*Major management factors:* Depth to the hardpan, hazard of wind erosion, permeability, hazard of water erosion, low precipitation

### ***Rangeland***

*Dominant vegetation in potential natural plant community:*  
 Wyoming big sagebrush, Thurber needlegrass (fig. 5)

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation.
- Plants that can tolerate droughtiness are suitable for seeding.
- Installation of pipelines is limited by depth to the hardpan.

### ***Cropland***

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- The best suited irrigation method is a sprinkler system.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- Farming across the slope, keeping tillage to a minimum, maintaining a cloddy surface, maintaining crop residue on or near the surface, and maintaining tilth and the content of organic matter reduce the hazards of wind erosion and water erosion.

### ***Building site development***

*General management considerations:*

- Excavation is hampered by the limited depth to the hardpan. Heavy equipment is needed.
- Shrinking and swelling adversely affect the quality of roadbeds and road surfaces.
- Septic tank absorption fields can be expected to function poorly because of the limited depth to the hardpan and the restricted permeability of the soil.
- Onsite investigation is needed to locate areas suitable for use as sites for septic tank absorption fields.

### ***Interpretive Groups***

*Land capability classification:* IIIe, irrigated; VIe, nonirrigated

*Range site:* Loamy, 8- to 10-inch precipitation zone

## **28—Chilcote-Kunton-Chardoton complex, 2 to 12 percent slopes**

### ***Composition***

Chilcote soil and similar inclusions—35 percent  
 Kunton soil and similar inclusions—30 percent  
 Chardoton soil and similar inclusions—20 percent  
 Contrasting inclusions—15 percent

### ***Setting***

*Position on landscape:* Basalt plains, terraces

*Elevation:* About 3,800 feet

*Average annual precipitation:* About 11 inches

*Average annual air temperature:* About 49 degrees F

*Frost-free season:* About 110 days

### ***Characteristics of the Chilcote Soil***

*Percent of rock fragments on the surface:* 3 to 15 percent stones

*Typical profile:*

- 0 to 7 inches—very pale brown very stony silty clay loam
- 7 to 17 inches—yellowish brown silty clay
- 17 to 20 inches—yellowish brown silty clay loam
- 20 to 33 inches—very pale brown silt loam
- 33 to 39 inches—white, very strongly cemented hardpan
- 39 to 67 inches—alternate layers of strongly cemented material (hardpan) and very fine sandy loam and loam

*Depth class:* Moderately deep

*Depth to hardpan (not rippable):* 20 to 40 inches

*Drainage class:* Well drained



**Figure 5.**—An area of Chilcott-Elijah silt loams, 0 to 12 percent slopes, on a basalt plain near Mountain Home. This map unit supports mainly Wyoming big sagebrush. Badge, Immiant, and Ruckles soils are on foothills in the background.

*Permeability:* Slow

*Available water capacity:* Moderate

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### ***Characteristics of the Kunaton Soil***

*Percent of rock fragments on the surface:* 1 to 3 percent stones

### ***Typical profile:***

0 to 4 inches—very pale brown stony silt loam

4 to 10 inches—yellowish brown silty clay

10 to 12 inches—light yellowish brown silty clay loam

12 to 15 inches—white silt loam

15 to 31 inches—white, very strongly cemented hardpan

31 inches—unweathered bedrock

*Depth class:* Shallow

*Depth to hardpan (not rippable):* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Low

*Potential rooting depth:* 10 to 20 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Characteristics of the Chardoton Soil**

*Slope:* 2 to 8 percent

*Typical profile:*

0 to 4 inches—pale brown silt loam

4 to 8 inches—light gray loam

8 to 35 inches—pale brown and light yellowish brown silty clay

35 to 41 inches—very pale brown silty clay loam

41 to 55 inches—white loam

55 to 60 inches—pinkish white, moderately cemented hardpan

*Depth class:* Deep

*Depth to hardpan (rippable):* 40 to 60 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* High

*Potential rooting depth:* 40 to 60 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Colthorp, Power, and Sebree soils; nonstony Chilcott soils near Teapot Dome; Rubble land; Rock outcrop; soils that have slopes of more than 12 percent

### **Use and Management**

*Major use:* Rangeland

*Major management factors:* Available water capacity, stones on the surface, depth to bedrock, depth to the hardpan, hazard of water erosion, hazard of wind erosion, permeability, rooting depth, low precipitation

*Dominant vegetation in potential natural plant community:*

Chilcott and Chardoton soils—Wyoming big sagebrush, bluebunch wheatgrass, Thurber needlegrass; Kunaton soil—low sagebrush, bluebunch wheatgrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.

- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation and the stones on the surface in some areas.

- Plants that can tolerate droughtiness are suitable for seeding.

- Installation of pipelines is limited by depth to the hardpan.

### **Interpretive Groups**

*Land capability classification:* VIe, nonirrigated

*Range site:* Chilcott and Chardoton soils—Loamy, 10- to 12-inch precipitation zone; Kunaton soil—Shallow Stony Loam, 8- to 16-inch precipitation zone

## **29—Chilcott-Power complex, 0 to 8 percent slopes**

### **Composition**

Chilcott soil and similar inclusions—55 percent

Power soil and similar inclusions—20 percent

Contrasting inclusions—25 percent

### **Setting**

*Position on landscape:* Alluvial plains, basalt plains

*Elevation:* About 3,200 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 130 days

### **Characteristics of the Chilcott Soil**

*Typical profile:*

0 to 7 inches—light brownish gray and light gray silt loam

7 to 17 inches—brown silty clay

17 to 27 inches—light yellowish brown clay loam

27 to 33 inches—very pale brown loam

33 to 39 inches—white, very strongly cemented hardpan

39 to 67 inches—alternate layers of strongly cemented material (hardpan) and loam

*Depth class:* Moderately deep

*Depth to hardpan (not rippable):* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Moderate

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate



### **Characteristics of the Power Soil**

#### *Typical profile:*

0 to 6 inches—light brownish gray and light gray silt loam

6 to 19 inches—brown and pale brown clay loam

19 to 60 inches—light gray and white loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Chardoton, Purdam, Elijah, and Colthorp soils; soils that have bedrock at a depth of 20 to 40 inches; soils that have slopes of more than 8 percent

### **Use and Management**

*Major uses:* Rangeland, irrigated cropland

*Major management factors:* Depth to the hardpan, hazard of water erosion, hazard of wind erosion, permeability, low precipitation

#### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation.
- Plants that can tolerate droughtiness are suitable for seeding.
- Installation of pipelines is limited by depth to the hardpan in the Chilcott soil.

#### **Cropland**

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- The best suited irrigation method is a sprinkler system.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage to a minimum increase the water intake rate and improve tilth.

- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.

- Farming across the slope, keeping tillage to a minimum, maintaining a cloddy surface, maintaining crop residue on or near the surface, and maintaining tilth and the content of organic matter reduce the hazards of wind erosion and water erosion.

### **Interpretive Groups**

*Land capability classification:* IIIe, irrigated; VIe, nonirrigated

*Range site:* Loamy, 8- to 10-inch precipitation zone

## **30—Cinder land**

### **Composition**

Cinder land—75 percent

Contrasting inclusions—25 percent

### **Setting**

*Slope:* 8 to 40 percent

*Elevation:* About 3,200 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 130 days

### **Characteristics of the Cinder Land**

*Kind of material:* Isolated cinder cones and hills of volcanic material

### **Use**

*Major use:* Source of cinders

*Minor use:* Grazing land in areas of included soils

### **Contrasting Inclusions**

Trevino, Colthorp, and Chilcott soils; Xerollic Camborthids; Xeric Torriorthents

### **Interpretive Groups**

*Land capability classification:* VIII

## **31—Colthorp stony silt loam, 0 to 8 percent slopes**

### **Composition**

Colthorp soil and similar inclusions—75 percent

Contrasting inclusions—25 percent

### **Setting**

*Position on landscape:* Basalt plains

*Elevation:* About 3,500 feet

*Average annual precipitation:* About 10 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 120 days

### **Characteristics of the Colthorp Soil**

*Percent of rock fragments on the surface:* 1 to 3 percent cobbles and stones

*Typical profile:*

0 to 3 inches—light brownish gray stony silt loam

3 to 10 inches—brown and light yellowish brown silty clay loam

10 to 18 inches—very pale brown and white silt loam

18 to 23 inches—white, very strongly cemented hardpan

23 inches—unweathered bedrock

*Depth class:* Shallow

*Depth to hardpan (not rippable):* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Low

*Potential rooting depth:* 10 to 20 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

### **Contrasting Inclusions**

Elijah, Chilcott, and Minveno soils; soils that are similar to the Colthorp soil but are more than 40 inches deep to bedrock; soils that have slopes of more than 8 percent

### **Use and Management**

*Major uses:* Rangeland, homesites in a few areas

*Major management factors:* Available water capacity, stones on the surface and in the soil, depth to bedrock, depth to the hardpan, hazard of water erosion, permeability, rooting depth, low precipitation

### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation and by depth to the hardpan.
- The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation and by the stones on the surface.

- Installation of pipelines is limited by depth to the hardpan and to bedrock.

### **Building site development**

*General management considerations:*

- Excavation is hampered by the limited depth to bedrock and to the hardpan. Heavy equipment is needed.
- Septic tank absorption fields can be expected to function poorly because of the limited depth to the hardpan and to bedrock and because of the restricted permeability of the soil.
- Onsite investigation is needed to locate areas suitable for use as sites for septic tank absorption fields.

### **Interpretive Groups**

*Land capability classification:* VIs, nonirrigated

*Range site:* Loamy, 8- to 10-inch precipitation zone

## **32—Colthorp-Chilcott silt loams, 0 to 8 percent slopes**

### **Composition**

Colthorp soil and similar inclusions—50 percent

Chilcott soil and similar inclusions—40 percent

Contrasting inclusions—10 percent

### **Setting**

*Position on landscape:* Basalt plains

*Elevation:* About 3,300 feet

*Average annual precipitation:* About 10 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 120 days

### **Characteristics of the Colthorp Soil**

*Typical profile:*

0 to 3 inches—light brownish gray silt loam

3 to 10 inches—brown and light yellowish brown silty clay loam

10 to 18 inches—very pale brown and white silt loam

18 to 23 inches—white, very strongly cemented hardpan

23 inches—unweathered bedrock

*Depth class:* Shallow

*Depth to hardpan (not rippable):* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Low

*Potential rooting depth:* 10 to 20 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Characteristics of the Chilcott Soil**

*Typical profile:*

0 to 7 inches—light brownish gray and light gray silt loam

7 to 17 inches—brown silty clay

17 to 27 inches—light yellowish brown clay loam

27 to 33 inches—very pale brown loam

33 to 39 inches—white, very strongly cemented hardpan

39 to 67 inches—alternate layers of strongly cemented material (hardpan) and loam

*Depth class:* Moderately deep

*Depth to hardpan (not rippable):* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Moderate

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Elijah, Sebree, Kunaton, and Chardoton soils; soils that are similar to the Colthorp soil but have bedrock at a depth of more than 40 inches; soils that have slopes of more than 8 percent

### **Use and Management**

*Major uses:* Rangeland, irrigated cropland, homesites in a few areas

*Major management factors:* Available water capacity, depth to bedrock, depth to the hardpan, hazard of water erosion, hazard of wind erosion, permeability, rooting depth, low precipitation

### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation and by the depth to bedrock in the Colthorp soil.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation and by the depth to bedrock in the Colthorp soil.
- Plants that can tolerate droughtiness are suitable for seeding.
- Installation of pipelines is limited by depth to the

hardpan in the Colthorp soil.

### **Cropland**

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- Production of irrigated crops is limited by depth to the hardpan.
- The best suited irrigation method is a sprinkler system.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage to a minimum increase the water intake rate and improve tilth.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- Farming across the slope, keeping tillage to a minimum, maintaining a cloddy surface, maintaining crop residue on or near the surface, and maintaining tilth and the content of organic matter reduce the hazards of wind erosion and water erosion.

### **Building site development**

*General management considerations:*

- Excavation is hampered by the limited depth to bedrock and to the hardpan. Heavy equipment is needed.
- Septic tank absorption fields can be expected to function poorly because of the limited depth to the hardpan and to bedrock and because of the restricted permeability of the soil.
- Onsite investigation is needed to locate areas suitable for use as sites for septic tank absorption fields.

### **Interpretive Groups**

*Land capability classification:* IIIe, irrigated; VIe, nonirrigated

*Range site:* Loamy, 8- to 10-inch precipitation zone

## **33—Colthorp-Kunaton complex, 0 to 8 percent slopes**

### **Composition**

Colthorp soil and similar inclusions—40 percent  
Kunaton soil and similar inclusions—40 percent  
Contrasting inclusions—20 percent

### **Setting**

*Position on landscape:* Basalt plains

*Elevation:* About 3,200 feet

*Average annual precipitation:* About 10 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 125 days

### **Characteristics of the Colthorp Soil**

*Typical profile:*

0 to 3 inches—light brownish gray stony silt loam

3 to 10 inches—brown and light yellowish brown silty clay loam

10 to 18 inches—very pale brown and white silt loam

18 to 23 inches—white, very strongly cemented hardpan

23 inches—unweathered bedrock

*Depth class:* Shallow

*Depth to hardpan (not rippable):* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Low

*Potential rooting depth:* 10 to 20 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Characteristics of the Kunaton Soil**

*Typical profile:*

0 to 4 inches—very pale brown silt loam

4 to 10 inches—yellowish brown silty clay

10 to 12 inches—light yellowish brown silty clay loam

12 to 15 inches—white silt loam

15 to 31 inches—white, very strongly cemented hardpan

31 inches—unweathered bedrock

*Depth class:* Shallow

*Depth to hardpan (not rippable):* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Low

*Potential rooting depth:* 10 to 20 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Chilcott, Elijah, and Power soils; large area of soils east of Mountain Home that have a hardpan at a depth of 15 to 20 inches and basalt at a depth of 40 to

more than 60 inches; soils that have slopes of more than 8 percent

### **Use and Management**

*Major uses:* Rangeland, irrigated cropland

*Major management factors:* Available water capacity, depth to bedrock, depth to the hardpan, hazard of water erosion, hazard of wind erosion, permeability, rooting depth, low precipitation

#### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation and by depth to the hardpan.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation.
- Plants that can tolerate droughtiness are suitable for seeding.
- Installation of pipelines is limited by depth to the hardpan and to bedrock.

#### **Cropland**

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- Production of irrigated crops is limited by depth to the hardpan.
- The best suited irrigation method is a sprinkler system.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- Farming across the slope, keeping tillage at a minimum, maintaining a cloddy surface, maintaining crop residue on or near the surface, and maintaining tilth and the content of organic matter reduce the hazards of wind erosion and water erosion.

### **Interpretive Groups**

*Land capability classification:* IVe, irrigated; VIe, nonirrigated

*Range site:* Loamy, 8- to 10-inch precipitation zone

### **34—Colthorp-Kunaton-Rubble land complex, 8 to 20 percent slopes**

#### ***Composition***

Colthorp soil and similar inclusions—35 percent  
Kunaton soil and similar inclusions—30 percent  
Rubble land—15 percent  
Contrasting inclusions—20 percent

#### ***Setting***

*Position on landscape:* Basalt plains  
*Elevation:* About 3,500 feet  
*Average annual precipitation:* About 11 inches  
*Average annual air temperature:* About 50 degrees F  
*Frost-free season:* About 120 days

#### ***Characteristics of the Colthorp Soil***

*Slope:* 8 to 20 percent

*Typical profile:*

- 0 to 3 inches—light brownish gray stony silt loam
- 3 to 10 inches—brown and light yellowish brown silty clay loam
- 10 to 18 inches—very pale brown and white silt loam
- 18 to 23 inches—white, very strongly cemented hardpan
- 23 inches—unweathered bedrock

*Depth class:* Shallow

*Depth to hardpan (not rippable):* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Low

*Potential rooting depth:* 10 to 20 inches

*Runoff:* Medium

*Hazard of water erosion:* Moderate

#### ***Characteristics of the Kunaton Soil***

*Slope:* 8 to 12 percent

*Typical profile:*

- 0 to 4 inches—very pale brown stony silt loam
- 4 to 10 inches—yellowish brown silty clay
- 10 to 12 inches—light yellowish brown silty clay loam
- 12 to 15 inches—white silt loam
- 15 to 31 inches—white, very strongly cemented hardpan
- 31 inches—unweathered bedrock

*Depth class:* Shallow

*Depth to hardpan (not rippable):* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Low

*Potential rooting depth:* 10 to 20 inches

*Runoff:* Medium

*Hazard of water erosion:* Moderate

#### ***Characteristics of the Rubble Land***

*Kind of material:* More than 90 percent loose surface stones

#### ***Contrasting Inclusions***

Chilcott soils; soils that are shallow to bedrock; soils that have slopes of less than 8 percent or more than 20 percent

#### ***Use and Management***

*Major use:* Rangeland

*Major management factors:* Available water capacity, stones on the surface, depth to bedrock, depth to the hardpan, hazard of water erosion, rooting depth, low precipitation, areas of Rubble land

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, bluebunch wheatgrass

*General management considerations:*

- Forage production is limited mainly by low precipitation and by depth to the hardpan.
- The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation and by the areas of Rubble land.
- Installation of pipelines is limited by depth to the hardpan and to bedrock.

#### ***Interpretive Groups***

*Land capability classification:* VIs, nonirrigated

*Range site:* Colthorp soil—Loamy, 10- to 12-inch precipitation zone; Kunaton soil—Loamy, 8- to 10-inch precipitation zone

### **35—Colthorp-Minveno stony silt loams, 0 to 8 percent slopes**

#### ***Composition***

Colthorp soil and similar inclusions—50 percent  
Minveno soil and similar inclusions—30 percent  
Contrasting inclusions—20 percent

#### ***Setting***

*Position on landscape:* Basalt plains  
*Elevation:* About 3,200 feet  
*Average annual precipitation:* About 9 inches  
*Average annual air temperature:* About 50 degrees F  
*Frost-free season:* About 125 days

**Characteristics of the Colthorp Soil***Typical profile:*

- 0 to 3 inches—light brownish gray stony silt loam
- 3 to 10 inches—brown and light yellowish brown silty clay loam
- 10 to 18 inches—very pale brown and white silt loam
- 18 to 23 inches—white, very strongly cemented hardpan
- 23 inches—unweathered bedrock

*Depth class:* Shallow*Depth to hardpan (not rippable):* 10 to 20 inches*Drainage class:* Well drained*Permeability:* Moderately slow*Available water capacity:* Low*Potential rooting depth:* 10 to 20 inches*Runoff:* Slow or medium*Hazard of water erosion:* Moderate**Characteristics of the Minveno Soil***Typical profile:*

- 0 to 8 inches—light brownish gray and brown stony silt loam
- 8 to 14 inches—white loam
- 14 to 21 inches—white, very strongly cemented hardpan
- 21 inches—unweathered bedrock

*Depth class:* Shallow*Depth to hardpan (not rippable):* 10 to 20 inches*Drainage class:* Well drained*Permeability:* Moderate*Available water capacity:* Low*Potential rooting depth:* 10 to 20 inches*Runoff:* Slow or medium*Hazard of water erosion:* Moderate*Hazard of wind erosion:* Moderate**Contrasting Inclusions**

Elijah, Minidoka, Purdam, Kunaton, and Chilcott soils;  
soils that are more than 40 inches deep to bedrock;  
soils that have slopes of more than 8 percent

**Use and Management***Major use:* Rangeland

*Major management factors:* Available water capacity, stones on the surface and in the soil, depth to bedrock, depth to the hardpan, hazard of water erosion, rooting depth, low precipitation

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low

precipitation and by depth to the hardpan.

- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation and the stones on the surface.

- Plants that can tolerate droughtiness are suitable for seeding.

- Installation of pipelines is limited by depth to the hardpan and to bedrock.

**Interpretive Groups***Land capability classification:* Vle, nonirrigated*Range site:* Loamy, 8- to 10-inch precipitation zone**36—Colthorp-Rock outcrop complex, 4 to 20 percent slopes****Composition**

Colthorp soil and similar inclusions—65 percent

Rock outcrop—15 percent

Contrasting inclusions—20 percent

**Setting***Position on landscape:* Basalt plains*Elevation:* About 3,200 feet*Average annual precipitation:* About 9 inches*Average annual air temperature:* About 50 degrees F*Frost-free season:* About 125 days**Characteristics of the Colthorp Soil***Typical profile:*

- 0 to 3 inches—light brownish gray very stony silt loam
- 3 to 10 inches—brown and light yellowish brown silty clay loam
- 10 to 18 inches—very pale brown and white silt loam
- 18 to 23 inches—white, very strongly cemented hardpan
- 23 inches—unweathered bedrock

*Depth class:* Shallow*Depth to hardpan (not rippable):* 10 to 20 inches*Drainage class:* Well drained*Permeability:* Moderately slow*Available water capacity:* Low*Potential rooting depth:* 10 to 20 inches*Runoff:* Medium*Hazard of water erosion:* Moderate**Characteristics of the Rock Outcrop**

*Kind of material:* Exposed basalt or rhyolite that is fractured in some places



### ***Contrasting Inclusions***

Kunaton and Trevino soils; Rubble land; soils that have slopes of more than 20 percent

### ***Use and Management***

*Major use:* Rangeland

*Major management factors:* Available water capacity, depth to bedrock, depth to the hardpan, hazard of water erosion, areas of Rock outcrop, rooting depth, low precipitation

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation and by depth to the hardpan.
- The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation and the stones on the surface.
- Seeding the areas of Colthorp soil in this map unit is difficult because of the pattern in which they occur with the areas of Rock outcrop.
- Installation of pipelines is limited by depth to the hardpan and to bedrock and by the areas of Rock outcrop.

### ***Interpretive Groups***

*Land capability classification:* VIs, nonirrigated

*Range site:* Loamy, 8- to 10-inch precipitation zone

## **37—Coski-Broad Canyon complex, 15 to 60 percent slopes**

### ***Composition***

Coski soil and similar inclusions—60 percent

Broad Canyon soil and similar inclusions—25 percent

Contrasting inclusions—15 percent

### ***Setting***

*Position on landscape:* Mountainsides

*Elevation:* About 6,800 feet

*Average annual precipitation:* About 30 inches

*Average annual air temperature:* About 39 degrees F

*Frost-free season:* About 50 days

### ***Characteristics of the Coski Soil***

*Position on landscape:* Drainageways, foot slopes, north-facing side slopes

*Slope:* 15 to 50 percent

*Thickness of organic mat on the surface:* 1 inch

*Typical profile:*

0 to 4 inches—dark grayish brown sandy loam

4 to 12 inches—brown coarse sandy loam

12 to 31 inches—very pale brown gravelly coarse sandy loam

31 to 44 inches—light yellowish brown gravelly coarse sandy loam

44 inches—unweathered bedrock

*Depth class:* Deep

*Drainage class:* Well drained

*Permeability:* Moderately rapid

*Available water capacity:* Low

*Potential rooting depth:* 40 to 60 inches

*Runoff:* Medium or rapid

*Hazard of water erosion:* Severe

### ***Characteristics of the Broad Canyon Soil***

*Position on landscape:* North- and east-facing side slopes and shoulder slopes

*Slope:* 25 to 60 percent

*Thickness of organic mat on the surface:* 2 inches

*Typical profile:*

0 to 9 inches—grayish brown and brown gravelly sandy loam

9 to 15 inches—pale brown gravelly sandy loam

15 to 33 inches—light gray very gravelly coarse sandy loam

33 to 50 inches—light gray very gravelly loamy sand

50 inches—weathered bedrock

*Depth class:* Deep

*Drainage class:* Well drained

*Permeability:* Moderately rapid

*Available water capacity:* Low

*Potential rooting depth:* 40 to 60 inches

*Runoff:* Rapid

*Hazard of water erosion:* Severe

### ***Contrasting Inclusions***

Graylock soils; Grousecreek soils on south- and west-facing side slopes; soils that have a thin upper layer; soils that have slopes of more than 60 percent

### ***Use and Management***

*Major uses:* Woodland, grazing land

*Major management factors:* Hazard of water erosion, slope

### ***Woodland***

*Dominant vegetation in potential natural plant community:*

Coski soil—subalpine fir, heartleaf arnica; Broad

Canyon soil—Douglas fir, Rocky Mountain maple

*Mean site index for subalpine fir on the Coski soil:* 104

*Mean site index for Douglas fir on the Broad Canyon soil: 72*

*Estimated average annual production per acre of Douglas fir (commercial): 4,470 cubic feet from a stand of 40-year-old trees 6 inches or more in diameter or 29,780 board feet (Scribner rule) from a stand of 80-year-old trees 11.6 inches or more in diameter*

*General management considerations:*

- Only the stands of Douglas fir are manageable for timber production.
- Wheeled and tracked equipment can be used in the more gently sloping areas, but cable yarding generally is safer and results in less disturbance of the soil surface.
- Constructing roads at midslope results in large cuts and fills and increases the hazard of erosion.
- Cuts occasionally slump when saturated.
- Adequately designed road drainage systems reduce the hazard of erosion.
- Steep yarding paths, skid trails, and firebreaks are subject to rilling and gullyng. A plant cover or water bars are needed.
- The waste material from roadbuilding can damage vegetation. It is also a potential source of sedimentation.
- When openings are made in the canopy, invading brush can delay reforestation.
- Carefully managing reforestation helps to control competition from less desirable understory plants.
- Adequate site preparation controls initial plant competition, and spraying controls the subsequent growth of less desirable plants.
- The limited available water capacity increases the seedling mortality rate.
- Plant competition delays natural regeneration but does not prevent the eventual development of a fully stocked, normal stand of trees.
- Thinning before trees reach commercial size and selectively cutting mature trees improve the stands.

#### **Grazable understory**

*Common forest understory plants:* Coski soil—Rocky Mountain maple, mountain snowberry, heartleaf arnica, Fendler meadowrue, elk sedge; Broad Canyon soil—Rocky Mountain maple, Oregon grape, Fendler meadowrue, heartleaf arnica, elk sedge

*Potential production of air-dry vegetation per acre:* Coski soil—400 to 800 pounds; Broad Canyon soil—500 to 1,000 pounds

*General management considerations:*

- When the timber stand reaches potential growth (more

than 70 percent canopy), the understory is sparse and has little value as forage. When the overstory is less dense, the understory provides good forage.

- Recently burned or logged areas can be grazed until competition from trees eliminates the forage.
- Thinning, managed logging, or fire reduces the density of the overstory and increases the understory.
- Seeding disturbed areas to suitable plants increases forage production.
- Grazing should be deferred until tree seedlings are well established.

#### **Interpretive Groups**

*Land capability classification:* VIIe, nonirrigated

### **38—Cottle-Sidlake complex, 4 to 30 percent slopes**

#### **Composition**

Cottle soil and similar inclusions—45 percent  
Sidlake soil and similar inclusions—30 percent  
Contrasting inclusions—25 percent

#### **Setting**

*Position on landscape:* Basalt plains

*Elevation:* About 3,400 feet

*Average annual precipitation:* About 10 inches

*Average annual air temperature:* About 49 degrees F

*Frost-free season:* About 110 days

#### **Characteristics of the Cottle Soil**

*Position on landscape:* Ridgetops, shoulder slopes

*Percent of rock fragments on the surface:* 5 to 15 percent stones

*Typical profile:*

0 to 5 inches—dark brown very stony loam

5 to 14 inches—brown extremely gravelly clay loam

14 inches—unweathered bedrock

*Depth class:* Shallow

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Low

*Potential rooting depth:* 10 to 20 inches

*Runoff:* Medium or rapid

*Hazard of water erosion:* Moderate

#### **Characteristics of the Sidlake Soil**

*Position on landscape:* Hillsides, foot slopes

*Typical profile:*

0 to 8 inches—pale brown and light yellowish brown loam

- 8 to 16 inches—light yellowish brown clay loam
- 16 to 19 inches—very pale brown gravelly loam
- 19 to 23 inches—very pale brown very gravelly sandy clay loam
- 23 to 26 inches—weathered bedrock
- 26 inches—unweathered bedrock

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Moderate

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Medium or rapid

*Hazard of water erosion:* Moderate

### **Contrasting Inclusions**

Lanktree and Lankbush soils; Rock outcrop; soils that have slopes of more than 30 percent; soils that are more than 35 percent clay between depths of 10 and 25 inches

### **Use and Management**

*Major use:* Rangeland

*Major management factors:* Available water capacity, stones on the surface, depth to bedrock, hazard of water erosion in the steeper areas, low precipitation

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation and the available water capacity.
- The suitability of this map unit for range seeding is poor. Seeding is limited by the slope and by the stones on the surface in some areas and by low precipitation.
- The use of equipment is limited by the slope and by the stones on the surface.
- Loss of the upper layer results in a severe decrease in the potential of the soil to produce forage.
- Installation of pipelines is limited by the depth to bedrock.

### **Interpretive Groups**

*Land capability classification:* Vle, nonirrigated

*Range site:* Loamy, 8- to 10-inch precipitation zone

## **39—Cottle-Trevino-Rock outcrop complex, 8 to 30 percent slopes**

### **Composition**

Cottle soil and similar inclusions—35 percent

Trevino soil and similar inclusions—30 percent

Rock outcrop—15 percent

Contrasting inclusions—20 percent

### **Setting**

*Position on landscape:* Basalt plains and ridges

*Elevation:* About 3,600 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 110 days

### **Characteristics of the Cottle Soil**

*Typical profile:*

0 to 4 inches—very pale brown gravelly loam

4 to 11 inches—very pale brown very gravelly clay loam

11 to 14 inches—pink extremely gravelly clay loam

14 inches—unweathered bedrock

*Depth class:* Shallow

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Low

*Potential rooting depth:* 10 to 20 inches

*Runoff:* Medium or rapid

*Hazard of water erosion:* Moderate

### **Characteristics of the Trevino Soil**

*Percent of rock fragments on the surface:* 1 to 3 percent stones

*Typical profile:*

0 to 5 inches—pale brown stony loam

5 to 12 inches—pale brown loam

12 to 18 inches—very pale brown fine sandy loam

18 inches—fractured, unweathered bedrock

*Depth class:* Shallow

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Low

*Potential rooting depth:* 10 to 20 inches

*Runoff:* Medium or rapid

*Hazard of water erosion:* Moderate

### **Characteristics of the Rock Outcrop**

*Position on landscape:* Mainly near ridgetops

*Kind of material:* Exposed volcanic bedrock

### **Contrasting Inclusions**

Sidlake, Shano, and Vining soils; soils that have 10 to 20 percent of the surface covered with stones; soils that have slopes of less than 8 percent or more than 30 percent

### **Use and Management**

*Major use:* Rangeland

*Major management factors:* Available water capacity,

stones on the surface, depth to bedrock, hazard of water erosion, rooting depth, low precipitation, areas of Rock outcrop

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation, low available water capacity, and shallow rooting depth.
- The suitability of this map unit for range seeding is poor. Seeding is limited by the areas of Rock outcrop, stones on the surface, low available water capacity, and low precipitation.
- The use of equipment is limited by the slope and by the stones on the surface.
- Loss of the upper layer results in a severe decrease in the potential of the soil to produce forage.
- Installation of pipelines is limited by the slope and by the depth to bedrock.
- Construction of fences is limited by the depth to bedrock.

### ***Interpretive Groups***

*Land capability classification:* Vle, nonirrigated

*Range site:* Loamy, 8- to 10-inch precipitation zone

## **40—Cottle-Willhill complex, 2 to 25 percent slopes**

### ***Composition***

Cottle soil and similar inclusions—65 percent

Willhill soil and similar inclusions—15 percent

Contrasting inclusions—20 percent

### ***Setting***

*Position on landscape:* Foothills

*Elevation:* About 3,900 feet

*Average annual precipitation:* About 10 inches

*Average annual air temperature:* About 49 degrees F

*Frost-free season:* About 110 days

### ***Characteristics of the Cottle Soil***

*Percent of rock fragments on the surface:* 1 to 3 percent stones

*Typical profile:*

0 to 5 inches—dark brown stony loam

5 to 14 inches—brown extremely gravelly clay loam

14 inches—unweathered bedrock

*Depth class:* Shallow

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Low

*Potential rooting depth:* 10 to 20 inches

*Runoff:* Medium

*Hazard of water erosion:* Moderate

### ***Characteristics of the Willhill Soil***

*Percent of rock fragments on the surface:* 5 to 10 percent stones

*Typical profile:*

0 to 3 inches—grayish brown very stony loam

3 to 8 inches—pale brown gravelly clay loam

8 to 24 inches—white extremely cobbly loam that is 70 percent hardpan fragments

24 inches—weathered bedrock

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Low

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Medium

*Hazard of water erosion:* Moderate

### ***Contrasting Inclusions***

Troughs, Bruncan, McKeeth, and Hotcreek soils; Rock outcrop

### ***Use and Management***

*Major use:* Rangeland

*Major management factors:* Available water capacity, stones on the surface, depth to bedrock, hazard of water erosion, rooting depth, low precipitation

*Dominant vegetation in potential natural plant community:*

Cottle soil—low sagebrush, Thurber needlegrass;

Willhill soil—Wyoming big sagebrush, Sandberg bluegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation, low available water capacity, and limited rooting depth.
- The suitability of this map unit for range seeding is poor. Seeding is limited by the slope, by the restricted rooting depth, and by the stones on the surface.
- The use of equipment is limited by the slope and by the stones on the surface.
- Loss of the upper layer results in a severe decrease in the potential of the soil to produce forage.
- Installation of pipelines and fences is limited by the depth to bedrock.

### ***Interpretive Groups***

*Land capability classification:* Vle, nonirrigated

*Range site:* Cottle soil—Loamy, 8- to 10-inch

precipitation zone; Willhill soil—Loamy, 7- to 10-inch precipitation zone

#### **41—Cowgil extremely stony sandy loam, 4 to 20 percent slopes**

##### ***Composition***

Cowgil soil and similar inclusions—85 percent  
Contrasting inclusions—15 percent

##### ***Setting***

*Position on landscape:* Alluvial terraces

*Elevation:* About 3,000 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 130 days

##### ***Characteristics of the Cowgil Soil***

*Percent of rock fragments on the surface:* 15 to 25 percent stones

*Typical profile:*

0 to 4 inches—pale brown and light yellowish brown extremely stony sandy loam

4 to 21 inches—yellowish brown very gravelly sandy clay loam

21 to 27 inches—variegated very cobbly loamy sand

27 to 60 inches—dark gray extremely gravelly coarse sand

*Depth class:* Very deep

*Depth to very cobbly material:* 20 to 30 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Low

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

##### ***Contrasting Inclusions***

Greenleaf, Abgese, and Buko soils; soils that do not have stones on the surface

##### ***Use and Management***

*Major use:* Rangeland

*Major management factors:* Available water capacity, stones on the surface and in the soil, hazard of water erosion, depth to very cobbly material, risk of seepage, slope, low precipitation

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass

##### ***General management considerations:***

- Forage production is limited mainly by low precipitation and low available water capacity.
- The use of forage by livestock is limited by the stones on the surface.
- The suitability of this map unit for range seeding is poor. Seeding is limited by the stones on the surface and by the slope.
- The use of equipment is limited by the stones on the surface.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.

##### ***Interpretive Groups***

*Land capability classification:* VIIs, nonirrigated

*Range site:* Sandy Loam, 8- to 12-inch precipitation zone

#### **42—Cowgil extremely stony fine sandy loam, 0 to 4 percent slopes**

##### ***Composition***

Cowgil soil and similar inclusions—85 percent  
Contrasting inclusions—15 percent

##### ***Setting***

*Position on landscape:* Alluvial terraces

*Elevation:* About 2,700 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 51 degrees F

*Frost-free season:* About 130 days

##### ***Characteristics of the Cowgil Soil***

*Percent of rock fragments on the surface:* 15 to 25 percent stones

*Typical profile:*

0 to 4 inches—pale brown and light yellowish brown extremely stony fine sandy loam

4 to 21 inches—yellowish brown very gravelly sandy clay loam

21 to 27 inches—variegated very cobbly loamy sand

27 to 60 inches—dark gray extremely gravelly coarse sand

*Depth class:* Very deep

*Depth to very cobbly material:* 20 to 30 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Low

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion (where stones have been removed):* Moderate

### ***Contrasting Inclusions***

Timmerman, Royal, Davey, and Abgese soils; soils that have slopes of more than 4 percent; soils that do not have stones on the surface

### ***Use and Management***

*Major uses:* Rangeland, irrigated cropland in areas where the stones have been cleared from the surface

*Major management factors:* Available water capacity, stones on the surface and in the soil, hazard of wind erosion, depth to extremely gravelly material, risk of seepage, low precipitation

### ***Rangeland***

*Dominant vegetation in potential natural plant community:* Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by the available water capacity and low precipitation.
- The use of forage by livestock is limited by the stones on the surface.
- The suitability of this map unit for range seeding is poor. Seeding is limited by the stones on the surface.
- The use of equipment is limited by the stones on the surface.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.

### ***Cropland***

*General management considerations:*

- The best suited irrigation method is a sprinkler system.
- Stones on the surface make seedbed preparation difficult.
- The extremely gravelly layer restricts the growth of deep-rooted plants.
- Regulating the rate at which irrigation water is applied helps to control runoff and erosion and to avoid overirrigating and the leaching of plant nutrients.
- The hazard of wind erosion is reduced by maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the surface of the soil rough.

### ***Interpretive Groups***

*Land capability classification:* IVs, irrigated; VIIs, nonirrigated

*Range site:* Sandy Loam, 8- to 12-inch precipitation zone

## **43—Cowgil-Rubble land-Rock outcrop association, 25 to 50 percent slopes**

### ***Composition***

Cowgil soil and similar inclusions—40 percent  
Rubble land—25 percent  
Rock outcrop—20 percent  
Contrasting inclusions—15 percent

### ***Setting***

*Position on landscape:* Foothills

*Elevation:* About 3,800 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 49 degrees F

*Frost-free season:* About 110 days

### ***Characteristics of the Cowgil Soil***

*Percent of rock fragments on the surface:* 15 to 25 percent stones

*Typical profile:*

- 0 to 4 inches—pale brown and light yellowish brown extremely stony sandy loam
- 4 to 21 inches—yellowish brown very gravelly sandy clay loam
- 21 to 27 inches—variegated very cobbly loamy sand
- 27 to 60 inches—dark gray extremely gravelly coarse sand

*Depth class:* Very deep

*Depth to extremely gravelly material:* 20 to 30 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Moderate

*Potential rooting depth:* 60 inches or more

*Runoff:* Medium or rapid

*Hazard of water erosion:* Severe

### ***Characteristics of the Rubble Land***

*Position on landscape:* Steep slopes near areas of Rock outcrop

*Kind of material:* More than 90 percent loose surface stones and boulders

### ***Characteristics of the Rock Outcrop***

*Kind of material:* Exposed volcanic bedrock

### ***Contrasting Inclusions***

Cottle, Trevino, Bruncan, and Sidlake soils; soils that

have slopes of less than 25 percent or more than 50 percent

### ***Use and Management***

*Major use:* Rangeland

*Major management factors:* Areas of Rubble land, stones on the surface of the soil, hazard of water erosion, areas of Rock outcrop, slope, low precipitation

*Dominant vegetation in potential natural plant community:* Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is poor. Seeding is limited by the stones on the surface and by the areas of Rock outcrop and Rubble land.
- The use of equipment is limited by the slope, the stones on the surface, and the areas of Rock outcrop and Rubble land.
- Installation of pipelines is limited by the areas of Rock outcrop and Rubble land and the stones on the surface.

### ***Interpretive Groups***

*Land capability classification:* Cowgil soil—VIIs, nonirrigated; Rubble land and Rock outcrop—VIII

*Range site:* Sandy Loam, 8- to 12-inch precipitation zone

## **44—Davey loamy sand, 4 to 12 percent slopes**

### ***Composition***

Davey soil and similar inclusions—75 percent

Contrasting inclusions—25 percent

### ***Setting***

*Position on landscape:* Dissected alluvial terraces

*Elevation:* About 2,800 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 51 degrees F

*Frost-free season:* About 135 days

### ***Characteristics of the Davey Soil***

*Typical profile:*

0 to 15 inches—light gray loamy sand

15 to 22 inches—pale brown fine sandy loam

22 to 60 inches—light gray loamy sand

*Depth class:* Very deep

*Drainage class:* Somewhat excessively drained

*Permeability:* Moderately rapid

*Available water capacity:* Moderate

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Severe

### ***Contrasting Inclusions***

Royal, Quincy, Vanderhoff, Buko, and Hawsley soils; soils that have slopes of less than 4 percent or more than 12 percent

### ***Use and Management***

*Major uses:* Rangeland, irrigated cropland, homesites in a few areas

*Major management factors:* Available water capacity, hazard of wind erosion, low precipitation

### ***Rangeland***

*Dominant vegetation in potential natural plant community:* Basin big sagebrush, Indian ricegrass, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation and the hazard of wind erosion.

### ***Cropland***

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- The best suited irrigation method is a sprinkler system.
- Regulating the rate at which irrigation water is applied helps to avoid overirrigating and the leaching of plant nutrients.
- Farming across the slope, keeping tillage at a minimum, maintaining crop residue on or near the surface, maintaining tilth and the content of organic matter, planting field windbreaks, and keeping the surface of the soil rough reduce the hazards of wind erosion and water erosion.

### ***Building site development***

*General management considerations:*

- Cutbanks are not stable and therefore are subject to slumping.
- This map unit is limited as a site for septic tank absorption fields because of the moderately rapid permeability, which causes poor filtration of the effluent and can result in pollution of the water supply.



- Onsite investigation is needed to locate areas suitable for use as sites for septic tank absorption fields.

### ***Interpretive Groups***

*Land capability classification:* IIIe, irrigated; VIe, nonirrigated

*Range site:* Sand, 8- to 12-inch precipitation zone

## **45—Davey loamy fine sand, 0 to 4 percent slopes**

### ***Composition***

Davey soil and similar inclusions—80 percent

Contrasting inclusions—20 percent

### ***Setting***

*Position on landscape:* Drainageways, fan terraces, stream terraces

*Elevation:* About 2,600 feet

*Average annual precipitation:* About 8 inches

*Average annual air temperature:* About 52 degrees F

*Frost-free season:* About 140 days

### ***Characteristics of the Davey Soil***

*Typical profile:*

0 to 15 inches—light gray loamy fine sand

15 to 22 inches—pale brown fine sandy loam

22 to 60 inches—light gray loamy sand

*Depth class:* Very deep

*Drainage class:* Somewhat excessively drained

*Permeability:* Moderately rapid

*Available water capacity:* Moderate

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Severe

### ***Contrasting Inclusions***

Royal and Quincy soils that support basin big sagebrush; Buko, Hawsley, and Vanderhoff soils; soils that have slopes of more than 4 percent

### ***Use and Management***

*Major uses:* Irrigated cropland, rangeland

*Major management factors:* Hazard of wind erosion, available water capacity, low precipitation

### ***Rangeland***

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass

### ***General management considerations:***

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation and the hazard of wind erosion.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.

### ***Cropland***

### ***General management considerations:***

- Most climatically suited crops can be grown if irrigation water is provided.
- Suitable irrigation methods are sprinkler, furrow, and corrugation systems.
- Leveling is needed in sloping areas for efficient application and removal of irrigation water.
- Surface drains are needed to remove tailwater if surface irrigation is used.
- Regulating the rate at which irrigation water is applied helps to avoid overirrigating and the leaching of plant nutrients.
- The hazard of wind erosion is reduced by maintaining crop residue on the surface, planting field windbreaks, keeping tillage at a minimum, and keeping the surface of the soil rough.

### ***Interpretive Groups***

*Land capability classification:* IIIe, irrigated; VIe, nonirrigated

*Range site:* Sandy Loam, 8- to 12-inch precipitation zone

## **46—Davey-Buko complex, 1 to 12 percent slopes**

### ***Composition***

Davey soil and similar inclusions—45 percent

Buko soil and similar inclusions—30 percent

Contrasting inclusions—25 percent

### ***Setting***

*Position on landscape:* Fan terraces, stream terraces

*Elevation:* About 2,900 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 51 degrees F

*Frost-free season:* About 135 days

### ***Characteristics of the Davey Soil***

*Typical profile:*

0 to 15 inches—light gray loamy fine sand

15 to 22 inches—pale brown fine sandy loam

22 to 60 inches—light gray loamy sand

*Depth class:* Very deep

*Drainage class:* Somewhat excessively drained

*Permeability:* Moderately rapid

*Available water capacity:* Moderate

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Severe

### **Characteristics of the Buko Soil**

*Typical profile:*

0 to 7 inches—pale brown fine sandy loam

7 to 24 inches—very pale brown loam

24 to 28 inches—slightly cemented, variegated very gravelly sand

28 to 60 inches—variegated extremely cobbly sand

*Depth class:* Very deep

*Depth to very gravelly material:* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow in the upper 20 to 40 inches; rapid below this depth

*Available water capacity:* Moderate

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Royal, Quincy, and Jacquith soils; soils that have slopes of more than 12 percent; soils that are more than 35 percent coarse fragments throughout

### **Use and Management**

*Major uses:* Rangeland, irrigated cropland

*Major management factors:* Available water capacity, hazard of water erosion, hazard of wind erosion, risk of seepage, low precipitation

### **Rangeland**

*Dominant vegetation in potential natural plant community:* Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation and the hazard of wind erosion.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.

### **Cropland**

*General management considerations:*

- Production of irrigated crops is limited by available water capacity and the hazard of wind erosion.
- The best suited irrigation method is a sprinkler system.
- Regulating the rate at which irrigation water is applied helps to control runoff and erosion and to avoid overirrigating and the leaching of plant nutrients.
- The hazard of wind erosion is reduced by maintaining crop residue on the surface, planting field windbreaks, keeping tillage at a minimum, and keeping the surface of the soil rough.

### **Interpretive Groups**

*Land capability classification:* IIIe, irrigated; VIe, nonirrigated

*Range site:* Sandy Loam, 8- to 12-inch precipitation zone

## **47—Davey-Mazuma complex, 12 to 40 percent slopes**

### **Composition**

Davey soil and similar inclusions—45 percent

Mazuma soil and similar inclusions—30 percent

Contrasting inclusions—25 percent

### **Setting**

*Position on landscape:* Dissected terraces

*Elevation:* About 2,800 feet

*Average annual precipitation:* About 8 inches

*Average annual air temperature:* About 52 degrees F

*Frost-free season:* About 135 days

### **Characteristics of the Davey Soil**

*Typical profile:*

0 to 15 inches—light gray loamy fine sand

15 to 22 inches—pale brown fine sandy loam

22 to 60 inches—light gray loamy sand

*Depth class:* Very deep

*Drainage class:* Somewhat excessively drained

*Permeability:* Moderately rapid

*Available water capacity:* Moderate

*Potential rooting depth:* 60 inches or more

*Runoff:* Medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Severe

### **Characteristics of the Mazuma Soil**

*Typical profile:*

0 to 33 inches—pale brown, light gray, and very

pale brown fine sandy loam

33 to 40 inches—very pale brown sandy loam

40 to 60 inches—very pale brown loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately rapid

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

*Salinity:* Slightly saline or moderately saline

### **Contrasting Inclusions**

Hawsley, Dors, Vanderhoff, and Royal soils; soils that have slopes of more than 40 percent

### **Use and Management**

*Major use:* Rangeland

*Major management factors:* Available water capacity, hazard of water erosion, hazard of wind erosion, salinity, slope, low precipitation

*Dominant vegetation in potential natural plant community:*

Davey soil—Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass; Mazuma soil—black greasewood, basin wildrye, inland saltgrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation, slope, and the hazards of wind erosion and water erosion.
- The use of equipment is limited by the slope.

### **Interpretive Groups**

*Land capability classification:* Vle, nonirrigated

*Range site:* Davey soil—Sandy Loam, 8- to 12-inch precipitation zone; Mazuma soil—Saline Bottom, 8- to 12-inch precipitation zone

## **48—Davey-Quincy complex, 1 to 12 percent slopes**

### **Composition**

Davey soil and similar inclusions—40 percent

Quincy soil and similar inclusions—35 percent

Contrasting inclusions—25 percent

### **Setting**

*Position on landscape:* Dunes, fan terraces, stream terraces

*Elevation:* About 2,900 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 51 degrees F

*Frost-free season:* About 135 days

### **Characteristics of the Davey Soil**

*Typical profile:*

0 to 15 inches—light gray loamy fine sand

15 to 22 inches—pale brown fine sandy loam

22 to 60 inches—light gray loamy sand

*Depth class:* Very deep

*Drainage class:* Somewhat excessively drained

*Permeability:* Moderately rapid

*Available water capacity:* Moderate

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Severe

### **Characteristics of the Quincy Soil**

*Typical profile:*

0 to 60 inches—light gray fine sand

*Depth class:* Very deep

*Drainage class:* Excessively drained

*Permeability:* Rapid

*Available water capacity:* Low

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Severe

### **Contrasting Inclusions**

Royal, Jacquith, Buko, and Truesdale soils; Dune land; soils that have consolidated sediment at a depth of 20 to 40 inches; soils that have slopes of more than 12 percent

### **Use and Management**

*Major uses:* Rangeland, irrigated cropland

*Major management factors:* Available water capacity, hazard of wind erosion, risk of seepage, low precipitation

### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Basin big sagebrush, Indian ricegrass, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation and the hazard of wind erosion.

- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.

#### **Cropland**

##### *General management considerations:*

- Production of irrigated crops is limited by low available water capacity and the hazard of wind erosion.
- The best suited irrigation method is a sprinkler system.
- Regulating the rate at which irrigation water is applied helps to avoid overirrigating and the leaching of plant nutrients.
- The hazard of wind erosion is reduced by maintaining crop residue on the surface, planting field windbreaks, keeping tillage at a minimum, and keeping the surface of the soil rough.

#### **Interpretive Groups**

*Land capability classification:* IVe, irrigated; VIIe, nonirrigated

*Range site:* Sand, 8- to 12-inch precipitation zone

### **49—Davey-Vanderhoff complex, 1 to 4 percent slopes**

#### **Composition**

Davey soil and similar inclusions—40 percent  
Vanderhoff soil and similar inclusions—40 percent  
Contrasting inclusions—20 percent

#### **Setting**

*Position on landscape:* Terraces

*Elevation:* About 2,600 feet

*Average annual precipitation:* About 8 inches

*Average annual air temperature:* About 52 degrees F

*Frost-free season:* About 140 days

#### **Characteristics of the Davey Soil**

##### *Typical profile:*

0 to 15 inches—light gray loamy fine sand  
15 to 22 inches—pale brown fine sandy loam  
22 to 60 inches—light gray loamy sand

*Depth class:* Very deep

*Drainage class:* Somewhat excessively drained

*Permeability:* Moderately rapid

*Available water capacity:* Moderate

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Severe

#### **Characteristics of the Vanderhoff Soil**

##### *Typical profile:*

0 to 3 inches—light gray fine sandy loam

3 to 19 inches—light gray very fine sandy loam

19 to 32 inches—white silt loam

32 inches—weathered siltstone

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Moderate

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

#### **Contrasting Inclusions**

Royal and Quincy soils; soils that have slopes of more than 4 percent

#### **Use and Management**

*Major uses:* Irrigated cropland, rangeland

*Major management factors:* Available water capacity, depth to slightly weathered bedrock in some areas, hazard of wind erosion, low precipitation

#### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Davey soil—Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass; Vanderhoff soil—shadscale, bud sagebrush, Indian ricegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation and the hazard of wind erosion.
- Installation of pipelines is limited by the depth to slightly weathered bedrock in the Vanderhoff soil.

#### **Cropland**

*General management considerations:*

- Production of irrigated crops is limited by the available water capacity and the depth to slightly weathered bedrock in some areas.
- The best suited irrigation method is a sprinkler system.
- Regulating the rate at which irrigation water is applied helps to avoid overirrigating and the leaching of plant nutrients.
- The hazard of wind erosion is reduced by maintaining crop residue on the surface, planting field windbreaks,

keeping tillage at a minimum, and keeping the surface of the soil rough.

### ***Interpretive Groups***

*Land capability classification:* Ille, irrigated; VIe, nonirrigated

*Range site:* Davey soil—Sandy Loam, 8- to 12-inch precipitation zone; Vanderhoff soil—Calcareous Loam, 7- to 10-inch precipitation zone

## **50—Dors fine sandy loam, 0 to 4 percent slopes**

### ***Composition***

Dors soil and similar inclusions—75 percent  
Contrasting inclusions—25 percent

### ***Setting***

*Position on landscape:* Fan terraces

*Elevation:* About 2,600 feet

*Average annual precipitation:* About 7 inches

*Average annual air temperature:* About 52 degrees F

*Frost-free season:* About 140 days

### ***Characteristics of the Dors Soil***

*Typical profile:*

0 to 5 inches—light brownish gray and pale brown fine sandy loam

5 to 26 inches—pinkish gray and very pale brown fine sandy loam

26 to 60 inches—variegated very gravelly sand

*Depth class:* Very deep

*Depth to very gravelly material:* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid in the upper 20 to 40 inches; very rapid below this depth

*Available water capacity:* Low

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

### ***Contrasting Inclusions***

Royal, Buko, Mazuma, Ornea, and Loray soils; Hawsley soils in drainageways; soils that have slopes of more than 4 percent

### ***Use and Management***

*Major uses:* Rangeland, irrigated cropland, homesites in a few areas

*Major management factors:* Available water capacity,

hazard of wind erosion, depth to very gravelly material, risk of seepage, slope, low precipitation

### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Shadscale, bud sagebrush, Indian ricegrass,

Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.

### **Cropland**

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- Production of irrigated crops is limited by the available water capacity.
- Suitable irrigation methods are sprinkler, furrow, and corrugation systems.
- Leveling is needed in sloping areas for efficient application and removal of irrigation water.
- The very gravelly sand at a depth of 20 to 40 inches restricts the growth of deep-rooted plants.
- Surface drains are needed to remove tailwater if surface irrigation is used.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- The hazard of wind erosion is reduced by maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the surface of the soil rough.

### **Building site development**

*General management considerations:*

- Cutbanks are not stable and therefore are subject to slumping.
- This map unit is a good source of roadfill.
- This map unit is limited as a site for septic tank absorption fields because of the very rapid permeability, which causes poor filtration of the effluent and can result in pollution of the water supply.

### ***Interpretive Groups***

*Land capability classification:* IIIs, irrigated; VIIc, nonirrigated

*Range site:* Calcareous Loam, 7- to 10-inch precipitation zone

## **51—Dors gravelly fine sandy loam, 4 to 12 percent slopes**

### ***Composition***

Dors soil and similar inclusions—75 percent

Contrasting inclusions—25 percent

### ***Setting***

*Position on landscape:* Dissected alluvial terraces, fan terraces

*Elevation:* About 2,600 feet

*Average annual precipitation:* About 7 inches

*Average annual air temperature:* About 52 degrees F

*Frost-free season:* About 140 days

### ***Characteristics of the Dors Soil***

*Percent of rock fragments on the surface:* 15 to 25 percent pebbles

*Typical profile:*

0 to 5 inches—light brownish gray and pale brown gravelly fine sandy loam

5 to 26 inches—pinkish gray and very pale brown fine sandy loam

26 to 60 inches—variegated very gravelly sand

*Depth class:* Very deep

*Depth to very gravelly material:* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid in the upper 20 to 40 inches; very rapid below this depth

*Available water capacity:* Low

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### ***Contrasting Inclusions***

Loray, Ornea, Mazuma, Vanderhoff, and Buko soils; soils that have slopes of less than 4 percent or more than 12 percent

### ***Use and Management***

*Major uses:* Rangeland, irrigated cropland

*Major management factors:* Available water capacity, hazard of water erosion, hazard of wind erosion, depth to very gravelly material, risk of seepage, low precipitation

### **Rangeland**

*Dominant vegetation in potential natural plant community:* Shadscale, bud sagebrush, Indian ricegrass,

Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.

### **Cropland**

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- Production of irrigated crops is limited by the available water capacity.
- The best suited irrigation method is a sprinkler system.
- The risk of erosion is increased if row crops are grown.
- The very gravelly sand at a depth of 20 to 40 inches restricts the growth of deep-rooted plants.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- Keeping tillage at a minimum, maintaining a cloddy surface, maintaining crop residue on the surface, and keeping the surface of the soil rough reduce the hazards of wind erosion and water erosion.

### ***Interpretive Groups***

*Land capability classification:* VIe, irrigated; VIIe, nonirrigated

*Range site:* Calcareous Loam, 7- to 10-inch precipitation zone

## **52—Dors-Loray complex, 0 to 4 percent slopes**

### ***Composition***

Dors soil and similar inclusions—50 percent

Loray soil and similar inclusions—30 percent

Contrasting inclusions—20 percent

### **Setting**

*Position on landscape:* Fan terraces

*Elevation:* About 2,500 feet

*Average annual precipitation:* About 7 inches

*Average annual air temperature:* About 52 degrees F

*Frost-free season:* About 140 days

### **Characteristics of the Dors Soil**

*Typical profile:*

0 to 5 inches—light brownish gray and pale brown fine sandy loam

5 to 26 inches—pinkish gray and very pale brown fine sandy loam

26 to 60 inches—variegated very gravelly sand

*Depth class:* Very deep

*Depth to very gravelly material:* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid in the upper 20 to 40 inches; very rapid below this depth

*Available water capacity:* Low

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

### **Characteristics of the Loray Soil**

*Percent of rock fragments on the surface:* 15 to 30 percent pebbles

*Typical profile:*

0 to 6 inches—light yellowish brown gravelly fine sandy loam

6 to 13 inches—very pale brown gravelly fine sandy loam

13 to 60 inches—variegated extremely gravelly sand

*Depth class:* Very deep

*Depth to extremely gravelly material:* 10 to 20 inches

*Drainage class:* Excessively drained

*Permeability:* Moderately rapid

*Available water capacity:* Low

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Mazuma, Hawsley, Buko, Ornea, McKeeth, and Garbutt soils

### **Use and Management**

*Major uses:* Rangeland, irrigated cropland

*Major management factors:* Available water capacity, gravel on the surface, hazard of wind erosion, depth to very gravelly and extremely gravelly material, low precipitation

#### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Shadscale, bud sagebrush, Indian ricegrass,

Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.

#### **Cropland**

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- Production of irrigated crops is limited by the available water capacity and the depth to very gravelly and extremely gravelly material.
- Suitable irrigation methods are sprinkler, furrow, and corrugation systems.
- Leveling is needed in sloping areas for efficient application and removal of irrigation water.
- The high content of gravel in the soil limits the amount of moisture available to plants.
- The very gravelly sand and extremely gravelly sand restrict the growth of deep-rooted plants.
- Regulating the rate at which irrigation water is applied helps to avoid overirrigating and the leaching of plant nutrients.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- The hazard of wind erosion is reduced by maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the surface of the soil rough.

### **Interpretive Groups**

*Land capability classification:* IIIs, irrigated; VIIs, nonirrigated

*Range site:* Calcareous Loam, 7- to 10-inch precipitation zone



## 53—Dune land

### **Composition**

Dune land—85 percent

Contrasting inclusions—15 percent

### **Setting**

*Location in survey area:* Bruneau Dunes State Park

*Position on landscape:* Ridges, troughs

*Slope:* 4 to 90 percent

*Elevation:* About 2,900 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 52 degrees F

*Frost-free season:* About 135 days

### **Characteristics of the Dune Land**

*Representative profile:*

0 to 60 inches—pale brown and light gray, windblown sand

*Depth class:* Very deep

*Drainage class:* Excessively drained

*Permeability:* Rapid

*Available water capacity:* Low

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Severe

### **Contrasting Inclusions**

Davey, Quincy, Royal, Letha, and Jacquith soils that support scattered Indian ricegrass, shrubs, and forbs

### **Major Use**

Recreation

### **Interpretive Groups**

*Land capability classification:* VIII

## 54—Elijah silt loam, 0 to 4 percent slopes

### **Composition**

Elijah soil and similar inclusions—75 percent

Contrasting inclusions—25 percent

### **Setting**

*Position on landscape:* Alluvial plains, basalt plains

*Elevation:* About 3,800 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 120 days

### **Characteristics of the Elijah Soil**

*Typical profile:*

0 to 7 inches—pale brown silt loam

7 to 21 inches—brown and light brown silty clay loam

21 to 30 inches—light gray and pink loam

30 to 41 inches—white, strongly cemented hardpan

41 to 60 inches—very pale brown fine sandy loam

*Depth class:* Moderately deep

*Depth to hardpan (not rippable):* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Moderate

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Chilcott, Purdam, Colthorp, Sebree, and Power soils; soils that have slopes of more than 4 percent

### **Use and Management**

*Major uses:* Rangeland, irrigated cropland

*Major management factors:* Available water capacity, depth to the hardpan, hazard of wind erosion, permeability, rooting depth, low precipitation

### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation.
- Plants that can tolerate droughtiness are suitable for seeding.
- Installation of pipelines is limited by depth to the hardpan.

### **Cropland**

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- Suitable irrigation methods are sprinkler, furrow, and corrugation systems.
- Leveling is needed in sloping areas for efficient application and removal of irrigation water.
- Surface drains are needed to remove tailwater if surface irrigation is used.

- Regulating the applications of irrigation water helps to control runoff and erosion.
- Because permeability is moderately slow above the hardpan, adjusting the length of runs helps to ensure adequate infiltration of water.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- The hazard of wind erosion is reduced by maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the surface of the soil rough.

### ***Interpretive Groups***

*Land capability classification:* IIIe, irrigated; VIs, nonirrigated

*Range site:* Loamy, 8- to 10-inch precipitation zone

## **55—Elijah silt loam, 4 to 12 percent slopes**

### ***Composition***

Elijah soil and similar inclusions—80 percent

Contrasting inclusions—20 percent

### ***Setting***

*Position on landscape:* Alluvial plains, basalt plains

*Elevation:* About 3,800 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 120 days

### ***Characteristics of the Elijah Soil***

*Typical profile:*

0 to 7 inches—pale brown silt loam

7 to 21 inches—brown and light brown silty clay loam

21 to 30 inches—light gray and pink loam

30 to 41 inches—white, strongly cemented hardpan

41 to 60 inches—very pale brown fine sandy loam

*Depth class:* Moderately deep

*Depth to hardpan (not rippable):* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Moderate

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### ***Contrasting Inclusions***

Chilcott, Colthorp, Purdam, and Power soils; soils that have slopes of less than 4 percent or more than 12 percent

### ***Use and Management***

*Major use:* Rangeland

*Major management factors:* Available water capacity, depth to the hardpan, hazard of water erosion, hazard of wind erosion, permeability, low precipitation

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation.
- Plants that can tolerate droughtiness are suitable for seeding.
- Installation of pipelines is limited by depth to the hardpan.

### ***Interpretive Groups***

*Land capability classification:* VIe, nonirrigated

*Range site:* Loamy, 8- to 10-inch precipitation zone

## **56—Elijah-Purdam silt loams, 0 to 8 percent slopes**

### ***Composition***

Elijah soil and similar inclusions—45 percent

Purdam soil and similar inclusions—35 percent

Contrasting inclusions—20 percent

### ***Setting***

*Position on landscape:* Alluvial plains, basalt plains

*Elevation:* About 3,600 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 120 days

### ***Characteristics of the Elijah Soil***

*Typical profile:*

0 to 7 inches—pale brown silt loam

7 to 21 inches—brown and light brown silty clay loam

21 to 30 inches—light gray and pink loam

30 to 41 inches—white, strongly cemented hardpan

41 to 60 inches—very pale brown fine sandy loam

*Depth class:* Moderately deep

*Depth to hardpan (not rippable):* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Moderate

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Characteristics of the Purdam Soil**

*Typical profile:*

0 to 6 inches—brown and pale brown silt loam

6 to 15 inches—pale brown silty clay loam

15 to 21 inches—pale brown silt loam

21 to 40 inches—very pale brown, weakly cemented hardpan

40 to 60 inches—variegated sand

*Depth class:* Moderately deep

*Depth to hardpan (rippable):* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Moderate

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Power, Owsel, Chilcott, and Kunaton soils; soils that have slopes of more than 8 percent

### **Use and Management**

*Major uses:* Rangeland, irrigated cropland

*Major management factors:* Available water capacity, depth to the hardpan, hazard of water erosion, hazard of wind erosion, permeability, rooting depth, low precipitation

### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation.
- Plants that can tolerate droughtiness are suitable for seeding.
- Installation of pipelines is limited by depth to the hardpan.

### **Cropland**

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- The best suited irrigation method is a sprinkler system.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Ripping or shattering the pan increases the effective root zone and available water capacity and improves internal drainage.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- Farming across the slope, keeping tillage at a minimum, maintaining a cloddy surface, and maintaining crop residue on the surface reduce the hazards of wind erosion and water erosion.

### **Interpretive Groups**

*Land capability classification:* IIIe, irrigated; VIe, nonirrigated

*Range site:* Loamy, 8- to 10-inch precipitation zone

## **57—Elkcreek-Demast complex, 10 to 50 percent slopes**

### **Composition**

Elkcreek soil and similar inclusions—40 percent

Demast soil and similar inclusions—40 percent

Contrasting inclusions—20 percent

### **Setting**

*Position on landscape:* Mountains

*Elevation:* About 6,300 feet

*Average annual precipitation:* About 20 inches

*Average annual air temperature:* About 40 degrees F

*Frost-free season:* About 50 days

### **Characteristics of the Elkcreek Soil**

*Position on landscape:* Side slopes, shoulder slopes

*Slope:* 20 to 50 percent

*Percent of rock fragments on the surface:* 1 to 3 percent stones

*Typical profile:*

0 to 4 inches—brown stony loam

4 to 10 inches—brown stony clay loam  
 10 to 22 inches—pale brown stony loam  
 22 inches—unweathered bedrock

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Low

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Medium or rapid

*Hazard of water erosion:* Moderate

### **Characteristics of the Demast Soil**

*Position on landscape:* Foot slopes, toe slopes, north- and east-facing side slopes

*Slope:* 10 to 30 percent

*Typical profile:*

0 to 15 inches—dark brown and very dark grayish brown loam  
 15 to 22 inches—brown gravelly loam  
 22 to 33 inches—brown cobbly loam  
 33 to 41 inches—reddish brown gravelly clay loam  
 41 to 45 inches—weathered bedrock

*Depth class:* Deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* High

*Potential rooting depth:* 40 to 60 inches

*Runoff:* Medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Simonton and Bauscher soils; Gaib soils on ridgetops; soils that have slopes of less than 10 percent or more than 50 percent

### **Use and Management**

*Major use:* Rangeland

*Major management factors:* Stones on the surface, depth to bedrock, hazard of water erosion, slope

*Dominant vegetation in potential natural plant community:*

Elkcreek soil—mountain big sagebrush, Idaho fescue, bluebunch wheatgrass; Demast soil—quaking aspen, pine reedgrass, Idaho fescue

*General management considerations:*

- Because cold soil temperatures limit plant growth, grazing should be delayed until the soil has warmed and the forage plants have achieved sufficient growth.
- The suitability of this map unit for range seeding is fair. Seeding is limited by the slope and by the stones on the surface in some areas.

- The use of equipment is limited by the slope and by the stones on the surface.

### **Interpretive Groups**

*Land capability classification:* Vle, nonirrigated

*Range site:* Elkcreek soil—Loamy, 12- to 16-inch precipitation zone; Demast soil—Quaking Aspen, 20+-inch precipitation zone

## **58—Elkcreek-Gaib-Simonton complex, 12 to 30 percent slopes**

### **Composition**

Elkcreek soil and similar inclusions—40 percent

Gaib soil and similar inclusions—25 percent

Simonton soil and similar inclusions—20 percent

Contrasting inclusions—15 percent

### **Setting**

*Position on landscape:* Foothills

*Elevation:* About 5,600 feet

*Average annual precipitation:* About 16 inches

*Average annual air temperature:* About 43 degrees F

*Frost-free season:* About 60 days

### **Characteristics of the Elkcreek Soil**

*Position on landscape:* Hillsides

*Slope:* 12 to 30 percent

*Percent of rock fragments on the surface:* 1 to 3 percent stones

*Typical profile:*

0 to 4 inches—brown stony loam  
 4 to 10 inches—brown stony clay loam  
 10 to 22 inches—pale brown stony loam  
 22 inches—unweathered bedrock

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Low

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Medium

*Hazard of water erosion:* Moderate

### **Characteristics of the Gaib Soil**

*Position on landscape:* Breaks, hillsides, ridges

*Slope:* 12 to 30 percent

*Percent of rock fragments on the surface:* 1 to 3 percent stones

*Typical profile:*

0 to 4 inches—brown stony fine sandy loam

4 to 12 inches—brown very gravelly loam  
12 inches—unweathered bedrock

*Depth class:* Shallow

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Low

*Potential rooting depth:* 10 to 20 inches

*Runoff:* Medium

*Hazard of water erosion:* Moderate

### **Characteristics of the Simonton Soil**

*Position on landscape:* Drainageways, north-facing side slopes, toe slopes

*Slope:* 12 to 20 percent

*Typical profile:*

0 to 4 inches—brown loam

4 to 36 inches—brown, light yellowish brown, and very pale brown clay loam

36 to 42 inches—very pale brown sandy clay loam

42 to 60 inches—very pale brown sandy loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Ruckles and Demast soils; Rock outcrop; soils that have as much as 25 percent of the surface covered with stones; soils that have slopes of less than 12 percent or more than 30 percent

### **Use and Management**

*Major use:* Rangeland

*Major management factors:* Available water capacity, stones on the surface, depth to bedrock, hazard of water erosion, slope

*Dominant vegetation in potential natural plant community:*

Elkcreek and Simonton soils—mountain big sagebrush, Idaho fescue, bluebunch wheatgrass;

Gaib soil—low sagebrush, bluebunch wheatgrass

*General management considerations:*

- Forage production is limited mainly by the depth to bedrock in the Gaib soil and by the available water capacity.
- The suitability of this map unit for range seeding is fair. Seeding is limited by the stones on the surface and by the depth to bedrock in the Gaib soil.
- Seeding the more favorable areas of Elkcreek and

Simonton soils in this map unit is difficult because of the pattern in which they occur with the less favorable areas of Gaib soil.

- The use of equipment is limited by the slope and by the stones on the surface.

- Construction of fences on the Gaib soil is limited by the depth to bedrock.

### **Interpretive Groups**

*Land capability classification:* Vle, nonirrigated

*Range site:* Elkcreek and Simonton soils—Loamy, 12- to 16-inch precipitation zone; Gaib soil—Shallow Stony Loam, 8- to 16-inch precipitation zone

## **59—Farrot-Haw complex, 20 to 50 percent slopes**

### **Composition**

Farrot soil and similar inclusions—45 percent

Haw soil and similar inclusions—35 percent

Contrasting inclusions—20 percent

### **Setting**

*Position on landscape:* Granitic hills

*Elevation:* About 4,000 feet

*Average annual precipitation:* About 13 inches

*Average annual air temperature:* About 49 degrees F

*Frost-free season:* About 110 days

### **Characteristics of the Farrot Soil**

*Position on landscape:* North- and east-facing side slopes, shoulder slopes, ridges

*Typical profile:*

0 to 10 inches—dark grayish brown and grayish brown coarse sandy loam

10 to 24 inches—light yellowish brown and brown sandy clay loam

24 to 30 inches—light yellowish brown very gravelly coarse sandy loam

30 inches—unweathered bedrock

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Low

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Medium or rapid

*Hazard of water erosion:* Moderate

### **Characteristics of the Haw Soil**

*Position on landscape:* West- and south-facing side slopes, foot slopes, toe slopes

**Typical profile:**

- 0 to 9 inches—grayish brown and dark grayish brown loam
- 9 to 12 inches—brown clay loam
- 12 to 25 inches—light yellowish brown and pale brown sandy clay loam
- 25 to 37 inches—very pale brown coarse sandy loam
- 37 to 60 inches—very pale brown loamy coarse sand

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Medium or rapid

*Hazard of water erosion:* Severe

**Contrasting Inclusions**

Rainey and Lankbush soils; Van Dusen soils on north-facing side slopes and toe slopes; Schoolhouse soils on ridgetops; Rock outcrop

**Use and Management**

*Major use:* Rangeland

*Major management factors:* Available water capacity, hazard of water erosion, slope, low precipitation

*Dominant vegetation in potential natural plant community:*

Farrot soil—mountain big sagebrush, bluebunch wheatgrass; Haw soil—Wyoming big sagebrush, bluebunch wheatgrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The use of forage by livestock is limited by the slope.
- The suitability of this map unit for range seeding is poor. Seeding is limited by the slope and low precipitation.
- The use of equipment is limited by the slope.

**Interpretive Groups**

*Land capability classification:* Vle, nonirrigated

*Range site:* Farrot soil—Loamy, 12- to 16-inch precipitation zone; Haw soil—Loamy, 10- to 12-inch precipitation zone

**60—Fluvaquents, channeled****Composition**

Fluvaquents and similar inclusions—80 percent

Contrasting inclusions—20 percent

**Setting**

*Position on landscape:* Flood plains

*Elevation:* About 2,500 feet

*Average annual precipitation:* About 7 inches

*Average annual air temperature:* About 53 degrees F

*Frost-free season:* About 145 days

**Characteristics of the Fluvaquents**

*Slope:* 0 to 1 percent

*Representative profile:*

0 to 5 inches—light brownish gray clay loam

5 to 7 inches—light brownish gray loam

7 to 18 inches—light brownish gray loamy sand

18 to 31 inches—light gray fine sandy loam

31 to 60 inches—light olive gray and light gray silt loam

*Depth class:* Very deep

*Drainage class:* Poorly drained or somewhat poorly drained

*Permeability:* Slow to moderately rapid

*Available water capacity:* Low to high

*Restriction affecting rooting depth:* Water table at a depth of 18 to 36 inches from April through November

*Runoff:* Very slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

*Depth to water table:* 18 to 36 inches from April through November; more than 36 inches the rest of the year

*Frequency of flooding:* Occasional

*Salinity:* Slightly saline

*Other characteristics:* Channels that are 10 to 20 feet wide and 2 to 4 feet deep throughout the map unit

**Contrasting Inclusions**

Baldock, Letha, Bram, and Bramwell soils; Riverwash; soils that have slopes of more than 1 percent; soils that are moderately well drained; soils in abandoned meander loops that have a thick, dark upper layer

**Use and Management**

*Major uses:* Hayland, pasture

*Major management factors:* Flooding, wetness

*General management considerations:*

- Wetness limits the choice of plants and the period of cutting or grazing.
- Providing drainage is difficult because of poor outlets.
- If suitable outlets are available, subsurface drains can be used to remove excess water and leached salts. Water-tolerant plants should be grown unless drainage is provided.
- Applying gypsum, leaching out the salts, and regularly

adding manure reduce the content of salts.

### ***Interpretive Groups***

*Land capability classification:* Vw, nonirrigated

## **61—Gaib-Rubble land complex, 40 to 80 percent slopes**

### ***Composition***

Gaib soil and similar inclusions—45 percent

Rubble land—40 percent

Contrasting inclusions—15 percent

### ***Setting***

*Position on landscape:* Canyonsides, foothills

*Elevation:* About 4,500 feet

*Average annual precipitation:* About 15 inches

*Average annual air temperature:* About 45 degrees F

*Frost-free season:* About 80 days

### ***Characteristics of the Gaib Soil***

*Percent of rock fragments on the surface:* 5 to 15 percent stones

*Typical profile:*

0 to 4 inches—brown very stony fine sandy loam

4 to 12 inches—brown very gravelly loam

12 inches—unweathered bedrock

*Depth class:* Shallow

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Low

*Potential rooting depth:* 10 to 20 inches

*Runoff:* Rapid

*Hazard of water erosion:* Severe

### ***Characteristics of the Rubble Land***

*Kind of material:* More than 90 percent loose surface stones

### ***Contrasting Inclusions***

Elkcreek, Simonton, and Bauscher soils on toe slopes and foot slopes; Rock outcrop; soils that have slopes of less than 40 percent

### ***Use and Management***

*Major use:* Rangeland

*Major management factors:* Stones on the surface, areas of Rubble land, depth to bedrock, hazard of water erosion, slope

*Dominant vegetation in potential natural plant community:*

Gaib soil—mountain big sagebrush, bluebunch wheatgrass

*General management considerations:*

- Forage production is limited mainly by the slope, the stones on the surface, and the depth to bedrock.
- The use of forage by livestock is limited by the slope and by the stones on the surface.
- The suitability of this soil for range seeding is poor. Seeding is limited by the slope and by the stones on the surface.
- The use of equipment is limited by the slope and by the stones on the surface.
- Installation of pipelines is limited by the slope and the depth to bedrock.

### ***Interpretive Groups***

*Land capability classification:* VIIe, nonirrigated

*Range site:* Fractured South Slope, 12- to 16-inch precipitation zone

## **62—Gaib-Elkcreek-Rock outcrop association, 2 to 20 percent slopes**

### ***Composition***

Gaib soil and similar inclusions—40 percent

Elkcreek soil and similar inclusions—30 percent

Rock outcrop—15 percent

Contrasting inclusions—15 percent

### ***Setting***

*Position on landscape:* Foothills

*Elevation:* About 5,400 feet

*Average annual precipitation:* About 15 inches

*Average annual air temperature:* About 42 degrees F

*Frost-free season:* About 65 days

### ***Characteristics of the Gaib Soil***

*Position on landscape:* Ridges, side slopes

*Percent of rock fragments on the surface:* 1 to 3 percent stones

*Typical profile:*

0 to 4 inches—brown stony fine sandy loam

4 to 12 inches—brown very gravelly loam

12 inches—unweathered bedrock

*Depth class:* Shallow

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Low

*Potential rooting depth:* 10 to 20 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

### ***Characteristics of the Elkcreek Soil***

*Position on landscape:* Side slopes



*Percent of rock fragments on the surface:* 1 to 3 percent stones

*Typical profile:*

- 0 to 4 inches—brown stony loam
- 4 to 10 inches—brown stony clay loam
- 10 to 22 inches—pale brown stony loam
- 22 inches—unweathered bedrock

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Low

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

### **Characteristics of the Rock Outcrop**

*Kind of material:* Exposed basalt or rhyolite that is fractured in some places

### **Contrasting Inclusions**

Brinegar soils in drainageways; Simonton soils on toe slopes; soils that have 3 to 15 percent of the surface covered with stones; soils that have slopes of more than 20 percent

### **Use and Management**

*Major use:* Rangeland

*Major management factors:* Available water capacity, stones on the surface, hazard of water erosion, areas of Rock outcrop

*Dominant vegetation in potential natural plant community:*

- Gaib soil—low sagebrush, bluebunch wheatgrass;
- Elkcreek soil—mountain big sagebrush, Idaho fescue, bluebunch wheatgrass

*General management considerations:*

- Forage production is limited mainly by the depth to bedrock in the Gaib soil and by the low available water capacity.
- The suitability of this map unit for range seeding is fair. Seeding is limited by the depth to bedrock in the Gaib soil and by the areas of Rock outcrop.
- Seeding the more favorable areas of Elkcreek soil in this map unit is difficult because of the pattern in which they occur with the less favorable areas of Gaib soil and the areas of Rock outcrop.
- The use of equipment is limited by the slope, the stones on the surface, and the areas of Rock outcrop.
- Installation of pipelines is limited by the depth to bedrock in the Gaib soil and by the areas of Rock outcrop.
- Construction of fences on the Gaib soil is limited by the depth to bedrock.

### **Interpretive Groups**

*Land capability classification:* Gaib soil—VIIIs, nonirrigated; Elkcreek soil—IVe, nonirrigated; Rock outcrop—VIII

*Range site:* Gaib soil—Shallow Stony Loam, 8- to 16-inch precipitation zone; Elkcreek soil—Loamy, 12- to 16-inch precipitation zone

## **63—Gaib-Elkcreek-Simonton association, 20 to 60 percent slopes**

### **Composition**

Gaib soil and similar inclusions—35 percent

Elkcreek soil and similar inclusions—25 percent

Simonton soil and similar inclusions—25 percent

Contrasting inclusions—15 percent

### **Setting**

*Position on landscape:* Foothills, canyonsides, mountains

*Elevation:* About 5,500 feet

*Average annual precipitation:* About 16 inches

*Average annual air temperature:* About 42 degrees F

*Frost-free season:* About 65 days

### **Characteristics of the Gaib Soil**

*Position on landscape:* Canyonsides, hillsides

*Slope:* 30 to 60 percent

*Percent of rock fragments on the surface:* 1 to 3 percent stones

*Typical profile:*

- 0 to 4 inches—brown stony fine sandy loam
- 4 to 12 inches—brown very gravelly loam
- 12 inches—unweathered bedrock

*Depth class:* Shallow

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Low

*Potential rooting depth:* 10 to 20 inches

*Runoff:* Rapid

*Hazard of water erosion:* Severe

### **Characteristics of the Elkcreek Soil**

*Position on landscape:* Hillsides, canyonsides

*Slope:* 30 to 60 percent

*Percent of rock fragments on the surface:* 1 to 3 percent stones

*Typical profile:*

- 0 to 4 inches—brown stony loam
- 4 to 10 inches—brown stony clay loam
- 10 to 22 inches—pale brown stony loam

22 inches—unweathered bedrock  
*Depth class:* Moderately deep  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* Low  
*Potential rooting depth:* 20 to 40 inches  
*Runoff:* Rapid  
*Hazard of water erosion:* Severe

### **Characteristics of the Simonton Soil**

*Position on landscape:* Foot slopes  
*Slope:* 20 to 30 percent  
*Typical profile:*  
 0 to 4 inches—brown loam  
 4 to 36 inches—brown, light yellowish brown, and very pale brown clay loam  
 36 to 42 inches—very pale brown sandy clay loam  
 42 to 60 inches—very pale brown sandy loam  
*Depth class:* Very deep  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* High  
*Potential rooting depth:* 60 inches or more  
*Runoff:* Medium  
*Hazard of water erosion:* Moderate  
*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Rock outcrop; Rubble land; soils that have slopes of less than 20 percent

### **Use and Management**

*Major use:* Rangeland  
*Major management factors:* Available water capacity, stones on the surface, depth to bedrock, hazard of water erosion, slope  
*Dominant vegetation in potential natural plant community:*  
 Gaib soil—mountain big sagebrush, bluebunch wheatgrass; Elkcreek and Simonton soils—mountain big sagebrush, Idaho fescue, bluebunch wheatgrass  
*General management considerations:*  
 • Forage production is limited mainly by the depth to bedrock in the Gaib soil and by the low available water capacity in the Gaib and Elkcreek soils.  
 • The use of forage by livestock is limited by the slope.  
 • The suitability of this map unit for range seeding is poor. Seeding is limited by the slope and by the stones on the surface.  
 • The use of equipment is limited by the slope and by the stones on the surface.

- Installation of pipelines is limited by the depth to bedrock in some areas and by the slope.
- Construction of fences on the Gaib soil is limited by the depth to bedrock.

### **Interpretive Groups**

*Land capability classification:* Gaib and Elkcreek soils—VIIe, nonirrigated; Simonton soil—VIe, nonirrigated  
*Range site:* Gaib soil—Fractured South Slope, 12- to 16-inch precipitation zone; Elkcreek and Simonton soils—Loamy, 12- to 16-inch precipitation zone

## **64—Gaib-Simonton-Rock outcrop association, 2 to 12 percent slopes**

### **Composition**

Gaib soil and similar inclusions—35 percent  
 Simonton soil and similar inclusions—30 percent  
 Rock outcrop—20 percent  
 Contrasting inclusions—15 percent

### **Setting**

*Position on landscape:* Foothills  
*Elevation:* About 5,200 feet  
*Average annual precipitation:* About 15 inches  
*Average annual air temperature:* About 42 degrees F  
*Frost-free season:* About 65 days

### **Characteristics of the Gaib Soil**

*Position on landscape:* Ridges near areas of Rock outcrop  
*Percent of rock fragments on the surface:* 1 to 3 percent stones  
*Typical profile:*  
 0 to 4 inches—brown stony loam  
 4 to 12 inches—brown very gravelly loam  
 12 inches—unweathered bedrock  
*Depth class:* Shallow  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* Low  
*Potential rooting depth:* 10 to 20 inches  
*Runoff:* Slow or medium  
*Hazard of water erosion:* Moderate

### **Characteristics of the Simonton Soil**

*Position on landscape:* Side slopes, toe slopes  
*Percent of rock fragments on the surface:* 1 to 3 percent stones  
*Typical profile:*  
 0 to 4 inches—brown stony loam

- 4 to 36 inches—brown, light yellowish brown, and very pale brown clay loam
- 36 to 42 inches—very pale brown sandy clay loam
- 42 to 60 inches—very pale brown sandy loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Characteristics of the Rock Outcrop**

*Kind of material:* Exposed basalt or rhyolite that is fractured in some places

### **Contrasting Inclusions**

Elkcreek soils; Rubble land; soils that have 3 to 15 percent of the surface covered with stones; soils that have slopes of more than 12 percent

### **Use and Management**

*Major use:* Rangeland

*Major management factors:* Available water capacity, stones on the surface, depth to bedrock, hazard of water erosion, areas of Rock outcrop

*Dominant vegetation in potential natural plant community:*

- Gaib soil—low sagebrush, bluebunch wheatgrass;
- Simonton soil—mountain big sagebrush, Idaho fescue, bluebunch wheatgrass

*General management considerations:*

- Forage production is limited mainly by the depth to bedrock in the Gaib soil.
- The suitability of this map unit for range seeding is fair. Seeding is limited by the depth to bedrock in the Gaib soil and by the areas of Rock outcrop.
- Seeding the more favorable areas of Simonton soil in this map unit is difficult because of the pattern in which they occur with the less favorable areas of Gaib soil and the areas of Rock outcrop.
- The use of equipment is limited by the stones on the surface and the areas of Rock outcrop.
- Installation of pipelines is limited by the areas of Rock outcrop and by the depth to bedrock in the Gaib soil.
- Construction of fences on the Gaib soil is limited by the depth to bedrock.

### **Interpretive Groups**

*Land capability classification:* Gaib soil—VIIIs, nonirrigated; Simonton soil—IIIe, nonirrigated; Rock outcrop—VIII

*Range site:* Gaib soil—Shallow Stony Loam, 12- to 16-

inch precipitation zone; Simonton soil—Loamy, 12- to 16-inch precipitation zone

## **65—Garbutt silt loam, 0 to 4 percent slopes**

### **Composition**

Garbutt soil and similar inclusions—80 percent

Contrasting inclusions—20 percent

### **Setting**

*Position on landscape:* Basalt plains, drainageways, fan terraces

*Elevation:* About 2,800 feet

*Average annual precipitation:* About 7 inches

*Average annual air temperature:* About 52 degrees F

*Frost-free season:* About 140 days

### **Characteristics of the Garbutt Soil**

*Typical profile:*

0 to 5 inches—light brownish gray silt loam

5 to 60 inches—light gray very fine sandy loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Mazuma and Dors soils, drained Grandview soils, Bahem and Hawsley soils

### **Use and Management**

*Major uses:* Rangeland, irrigated cropland, homesites in a few areas

*Major management factors:* Hazard of wind erosion, low precipitation

### **Rangeland**

*Dominant vegetation in potential natural plant community:* Winterfat, Indian ricegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation.

### **Cropland**

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.

- Suitable irrigation methods are sprinkler, furrow, and corrugation systems.
- Leveling is needed in sloping areas for efficient application and removal of irrigation water.
- Surface drains are needed to remove tailwater if surface irrigation is used.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- The hazard of wind erosion is reduced by maintaining crop residue on the surface and keeping the surface of the soil rough.

#### **Building site development**

##### *General management considerations:*

- Excavation can expose soil material that is highly susceptible to wind erosion, and it increases the risk of water erosion.
- Limited soil strength adversely affects the quality of roadbeds and road surfaces.

#### **Interpretive Groups**

*Land capability classification:* IIe, irrigated; VIIc, nonirrigated

*Range site:* Silty, 7- to 10-inch precipitation zone

### **66—Garbutt silt loam, 4 to 8 percent slopes**

#### **Composition**

Garbutt soil and similar inclusions—75 percent

Contrasting inclusions—25 percent

#### **Setting**

*Position on landscape:* Basalt plains, fan terraces

*Elevation:* About 2,700 feet

*Average annual precipitation:* About 7 inches

*Average annual air temperature:* About 52 degrees F

*Frost-free season:* About 140 days

#### **Characteristics of the Garbutt Soil**

##### *Typical profile:*

0 to 5 inches—light brownish gray silt loam

5 to 60 inches—light gray very fine sandy loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate  
oderate

#### **Contrasting Inclusions**

Mazuma, Power, Royal, Hawsley, and Dors soils; soils that have slopes of less than 4 percent

#### **Use and Management**

*Major uses:* Rangeland, irrigated cropland

*Major management factors:* Hazard of water erosion, hazard of wind erosion, low precipitation

#### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Shadscale, bud sagebrush, Indian ricegrass,

Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation.

#### **Cropland**

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- The best suited irrigation method is a sprinkler system.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- Keeping tillage at a minimum and maintaining a cloddy surface reduce the hazard of water erosion.
- The hazard of wind erosion is reduced by maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the surface of the soil rough.

#### **Interpretive Groups**

*Land capability classification:* IIIe, irrigated; VIle, nonirrigated

*Range site:* Calcareous Loam, 7- to 10-inch precipitation zone

**67—Garbutt-Weso complex, 0 to 2 percent slopes****Composition**

Garbutt soil and similar inclusions—50 percent

Weso soil and similar inclusions—30 percent

Contrasting inclusions—20 percent

**Setting**

*Position on landscape:* Basalt plains, fan terraces

*Elevation:* About 3,200 feet

*Average annual precipitation:* About 7 inches

*Average annual air temperature:* About 52 degrees F

*Frost-free season:* About 140 days

**Characteristics of the Garbutt Soil**

*Typical profile:*

0 to 5 inches—light brownish gray silt loam

5 to 60 inches—light gray very fine sandy loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

**Characteristics of the Weso Soil**

*Typical profile:*

0 to 5 inches—pale brown loam

5 to 19 inches—very pale brown loam

19 to 24 inches—very pale brown fine sandy loam  
with pockets of strongly cemented material  
(hardpan)

24 to 30 inches—very pale brown loam

30 to 60 inches—light gray sandy loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

**Contrasting Inclusions**

Minidoka, Mazuma, and Trevino soils; Power soils in  
depressions and drainageways

**Use and Management**

*Major use:* Rangeland

*Major management factors:* Hazard of wind erosion, low precipitation

*Dominant vegetation in potential natural plant community:*

Garbutt soil—winterfat, Indian ricegrass; Weso  
soil—shadscale, bud sagebrush, Indian ricegrass,  
Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.

- The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation.

**Interpretive Groups**

*Land capability classification:* VIIc, nonirrigated

*Range site:* Garbutt soil—Silty, 7- to 10-inch  
precipitation zone; Weso soil—Calcareous Loam, 7-  
to 10-inch precipitation zone

**68—Garbutt-Weso-Trevino complex, 2 to 8 percent slopes****Composition**

Garbutt soil and similar inclusions—40 percent

Weso soil and similar inclusions—35 percent

Trevino soil and similar inclusions—15 percent

Contrasting inclusions—10 percent

**Setting**

*Position on landscape:* Basalt plains, fan terraces

*Elevation:* About 3,000 feet

*Average annual precipitation:* About 7 inches

*Average annual air temperature:* About 52 degrees F

*Frost-free season:* About 140 days

**Characteristics of the Garbutt Soil**

*Slope:* 2 to 4 percent

*Typical profile:*

0 to 5 inches—light brownish gray silt loam

5 to 60 inches—light gray very fine sandy loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

**Characteristics of the Weso Soil**

*Slope:* 2 to 8 percent

*Typical profile:*

- 0 to 5 inches—pale brown loam
- 5 to 19 inches—very pale brown loam
- 19 to 24 inches—very pale brown fine sandy loam with pockets of strongly cemented material (hardpan)
- 24 to 30 inches—very pale brown loam
- 30 to 60 inches—light gray sandy loam

*Depth class:* Very deep*Drainage class:* Well drained*Permeability:* Moderate*Available water capacity:* High*Potential rooting depth:* 60 inches or more*Runoff:* Slow or medium*Hazard of water erosion:* Moderate*Hazard of wind erosion:* Moderate**Characteristics of the Trevino Soil***Slope:* 2 to 8 percent*Percent of rock fragments on the surface:* 1 to 3 percent stones*Typical profile:*

- 0 to 5 inches—pale brown stony silt loam
- 5 to 12 inches—pale brown loam
- 12 to 18 inches—very pale brown fine sandy loam
- 18 inches—unweathered bedrock

*Depth class:* Shallow*Drainage class:* Well drained*Permeability:* Moderate*Available water capacity:* Low*Potential rooting depth:* 10 to 20 inches*Runoff:* Slow or medium*Hazard of water erosion:* Moderate*Hazard of wind erosion:* Moderate**Contrasting Inclusions**

Minidoka, Mazuma, and Hawsley soils; Rock outcrop; Power soils that are in drainageways and depressions and support sagebrush; soils that are similar to the Trevino soil but have a hardpan above the bedrock

**Use and Management***Major use:* Rangeland*Major management factors:* Stones on the surface, depth to bedrock, hazard of water erosion, low precipitation*Dominant vegetation in potential natural plant community:*

Garbutt soil—winterfat, Indian ricegrass; Weso soil—shadscale, bud sagebrush, Indian ricegrass, Thurber needlegrass; Trevino soil—Wyoming big sagebrush, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation.

**Interpretive Groups***Land capability classification:* VIIe, nonirrigated

*Range site:* Garbutt soil—Silty, 7- to 10-inch precipitation zone; Weso soil—Calcareous Loam, 7- to 10-inch precipitation zone; Trevino soil—Loamy, 8- to 10-inch precipitation zone

**69—Garbutt-Trevino association, 4 to 20 percent slopes****Composition**

Garbutt soil and similar inclusions—50 percent

Trevino soil and similar inclusions—25 percent

Contrasting inclusions—25 percent

**Setting***Position on landscape:* Basalt plains*Elevation:* About 3,000 feet*Average annual precipitation:* About 8 inches*Average annual air temperature:* About 51 degrees F*Frost-free season:* About 135 days**Characteristics of the Garbutt Soil***Position on landscape:* Side slopes, drainageways*Typical profile:*

- 0 to 5 inches—light brownish gray silt loam
- 5 to 60 inches—light gray very fine sandy loam

*Depth class:* Very deep*Drainage class:* Well drained*Permeability:* Moderate*Available water capacity:* High*Potential rooting depth:* 60 inches or more*Runoff:* Medium*Hazard of water erosion:* Moderate*Hazard of wind erosion:* Moderate**Characteristics of the Trevino Soil***Position on landscape:* Ridges near areas of Rock outcrop*Typical profile:*

- 0 to 5 inches—pale brown stony silt loam
- 5 to 12 inches—pale brown loam
- 12 to 18 inches—very pale brown fine sandy loam
- 18 inches—unweathered bedrock

*Depth class:* Shallow

*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* Low  
*Potential rooting depth:* 10 to 20 inches  
*Runoff:* Medium  
*Hazard of water erosion:* Moderate  
*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Royal, Power, Purdam, and Scism soils; Rock outcrop;  
 Rubble land

### **Use and Management**

*Major use:* Rangeland  
*Major management factors:* Available water capacity, stoniness, depth to bedrock, hazard of water erosion, hazard of wind erosion, low precipitation  
*Dominant vegetation in potential natural plant community:* Garbutt soil—shadscale, bud sagebrush, Indian ricegrass, Thurber needlegrass; Trevino soil—Wyoming big sagebrush, Thurber needlegrass  
*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is poor. Seeding is limited by the depth to bedrock in the Trevino soil and by low precipitation.
- Seeding the more favorable areas of Garbutt soil in this map unit is difficult because of the pattern in which they occur with the less favorable areas of Trevino soil.
- Loss of the upper layer results in a severe decrease in the potential of the soil in this map unit to produce forage.
- Construction of fences on the Trevino soil is limited by the depth to bedrock.

### **Interpretive Groups**

*Land capability classification:* Garbutt soil—VIIe, nonirrigated; Trevino soil—VIe, nonirrigated  
*Range site:* Garbutt soil—Calcareous Loam, 7- to 10-inch precipitation zone; Trevino soil—Loamy, 8- to 10-inch precipitation zone

## **70—Grandview loam, 0 to 4 percent slopes**

### **Composition**

Grandview soil and similar inclusions—80 percent  
 Contrasting inclusions—20 percent

### **Setting**

*Position on landscape:* Flood plains, stream terraces  
*Elevation:* About 2,500 feet

*Average annual precipitation:* About 7 inches  
*Average annual air temperature:* About 52 degrees F  
*Frost-free season:* About 145 days

### **Characteristics of the Grandview Soil**

#### *Typical profile:*

0 to 13 inches—pale brown loam  
 13 to 35 inches—pale brown and light gray clay loam  
 35 to 60 inches—light gray loam

*Depth class:* Very deep  
*Drainage class:* Moderately well drained  
*Permeability:* Slow  
*Available water capacity:* High  
*Restriction affecting rooting depth:* Water table at a depth of 40 to 60 inches from April to September  
*Runoff:* Slow  
*Hazard of water erosion:* Slight  
*Hazard of wind erosion:* Moderate  
*Depth to seasonal high water table:* 40 to 60 inches from April to September; more than 60 inches the rest of the year  
*Frequency of flooding:* Rare  
*Salinity:* Slightly saline or moderately saline

### **Contrasting Inclusions**

Bramwell and Baldock soils; soils that are somewhat poorly drained and have a dark upper layer; soils that are strongly saline

### **Use and Management**

*Major use:* Irrigated cropland  
*Minor use:* Livestock grazing in a few small areas (less than 15 percent of the map unit) that support native vegetation  
*Major management factors:* Permeability, salinity, wetness

### **Cropland**

*General management considerations:*

- Production of irrigated crops is limited by the seasonal high water table and by salinity.
- Suitable irrigation methods are sprinkler, furrow, and corrugation systems.
- Leveling is needed in sloping areas for efficient application and removal of irrigation water.
- Wetness limits the production of deep-rooted crops.
- Providing drainage is difficult in some areas because of poor outlets.
- If suitable outlets are available, subsurface drains can be used to remove excess water and leached salts.
- Surface drains are needed to remove tailwater if surface irrigation is used.



- Salt-tolerant crops can be grown if the content of salts in the soil is reduced by leaching.
- Regulating the applications of irrigation water helps to prevent a rise in the level of the water table and an increase in the concentration of salts and sodium in the soil and helps to control runoff and erosion.
- Because permeability is moderately slow, adjusting the length of runs helps to ensure adequate infiltration of water.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- Returning crop residue to the soil, carefully applying irrigation water, providing adequate drainage, applying gypsum, leaching out the salts, applying sulfur or sulfuric acid, and growing green manure crops reduce the content of salts.

### ***Interpretive Groups***

*Land capability classification:* IIIs, irrigated

## **71—Grandview, drained-Garbutt silt loams, 0 to 4 percent slopes**

### ***Composition***

Grandview soil and similar inclusions—45 percent  
Garbutt soil and similar inclusions—35 percent  
Contrasting inclusions—20 percent

### ***Setting***

*Position on landscape:* Alluvial terraces, drainageways  
*Elevation:* About 2,600 feet  
*Average annual precipitation:* About 7 inches  
*Average annual air temperature:* About 52 degrees F  
*Frost-free season:* About 140 days

### ***Characteristics of the Grandview Soil***

#### ***Typical profile:***

0 to 6 inches—white silt loam  
6 to 11 inches—pale yellow silt loam  
11 to 30 inches—pale yellow silty clay loam  
30 to 60 inches—pale yellow silt loam

*Depth class:* Very deep

*Drainage class:* Well drained as a result of artificial drainage

*Permeability:* Moderately slow

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

### ***Characteristics of the Garbutt Soil***

#### ***Typical profile:***

0 to 5 inches—light brownish gray silt loam

5 to 60 inches—light gray very fine sandy loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

### ***Contrasting Inclusions***

Bram, Bramwell, Mazuma, and Hawsley soils; soils that have slopes of more than 4 percent

### ***Use and Management***

*Major uses:* Irrigated cropland, rangeland

*Major management factors:* Hazard of wind erosion, permeability, low precipitation

#### ***Rangeland***

*Dominant vegetation in potential natural plant community:*

Grandview soil—greasewood, basin wildrye, inland saltgrass; Garbutt soil—shadscale, bud sagebrush, Indian ricegrass, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation.

#### ***Cropland***

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- Suitable irrigation methods are sprinkler, furrow, and corrugation systems.
- Leveling is needed in sloping areas for efficient application and removal of irrigation water.
- Surface drains are needed to remove tailwater if surface irrigation is used.
- Regulating the applications of irrigation water helps to control runoff and erosion.

- Because permeability is moderate, adjusting the length of runs helps to ensure adequate infiltration of water.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- The hazard of wind erosion is reduced by maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the surface of the soil rough.

### ***Interpretive Groups***

*Land capability classification:* IIle, irrigated; VIIe, nonirrigated

*Range site:* Grandview soil, drained—Saline Bottom, 8- to 12-inch precipitation zone; Garbutt soil—Calcareous Loam, 7- to 10-inch precipitation zone

## **72—Graylock-Broad Canyon complex, 40 to 70 percent slopes**

### ***Composition***

Graylock soil and similar inclusions—40 percent  
Broad Canyon soil and similar inclusions—35 percent  
Contrasting inclusions—25 percent

### ***Setting***

*Position on landscape:* North-facing mountainsides at the lower elevations and all aspects of mountainsides at the higher elevations

*Elevation:* About 6,000 feet

*Average annual precipitation:* About 28 inches

*Average annual air temperature:* About 41 degrees F

*Frost-free season:* About 55 days

### ***Characteristics of the Graylock Soil***

*Thickness of organic mat on the surface:* 1 inch

*Typical profile:*

- 0 to 7 inches—pale brown and grayish brown gravelly coarse sandy loam
- 7 to 26 inches—very pale brown very gravelly loamy sand
- 26 to 58 inches—very pale brown very gravelly coarse sand
- 58 to 62 inches—unweathered bedrock

*Depth class:* Deep

*Drainage class:* Somewhat excessively drained

*Permeability:* Very rapid

*Available water capacity:* Low

*Potential rooting depth:* 40 to 60 inches

*Runoff:* Medium or rapid

*Hazard of water erosion:* Severe

### ***Characteristics of the Broad Canyon Soil***

*Thickness of organic mat on the surface:* 2 inches

*Typical profile:*

- 0 to 9 inches—brown gravelly sandy loam
- 9 to 15 inches—pale brown gravelly sandy loam
- 15 to 33 inches—light gray very gravelly coarse sandy loam
- 33 to 50 inches—light gray very gravelly loamy sand
- 50 inches—weathered bedrock

*Depth class:* Deep

*Drainage class:* Well drained

*Permeability:* Moderately rapid

*Available water capacity:* Low

*Potential rooting depth:* 40 to 60 inches

*Runoff:* Medium or rapid

*Hazard of water erosion:* Severe

### ***Contrasting Inclusions***

Grousecreek and Coski soils; Quartzburg and Switchback soils on south-facing slopes; Stavelly soils in the less sloping areas; Rock outcrop; shallow soils on ridges; soils that have slopes of less than 40 percent

### ***Use and Management***

*Major uses:* Woodland, grazing land

*Major management factors:* Available water capacity, hazard of water erosion, slope

### ***Woodland***

*Dominant vegetation in potential natural plant community:* Douglas fir, Rocky Mountain maple

*Mean site index for Douglas fir:* Graylock soil—97; Broad Canyon soil—85

*Estimated average annual production per acre of*

*Douglas fir (commercial):* Graylock soil—4,590 cubic feet from a stand of 40-year-old trees 6 inches or more in diameter or 30,100 board feet (Scribner rule) from a stand of 80-year-old trees 11.6 inches or more in diameter; Broad Canyon soil—4,470 cubic feet from a stand of 40-year-old trees 6 inches or more in diameter or 29,780 board feet (Scribner rule) from a stand of 80-year-old trees 11.6 inches or more in diameter

*General management considerations:*

- The slope restricts the use of wheeled and tracked

equipment on skid trails. Cable yarding generally is safer and results in less disturbance of the soil surface.

- Constructing roads at midslope results in large cuts and fills and increases the risk of erosion.
- Cuts occasionally slump when saturated.
- Adequately designed road drainage systems reduce the risk of erosion.
- Steep yarding paths, skid trails, and firebreaks are subject to rilling and gullying. A plant cover or water bars are needed.
- The waste material from roadbuilding can damage vegetation. It is also a potential source of sedimentation.
- When openings are made in the canopy, invading brush can delay reforestation.
- Carefully managing reforestation and regeneration helps to control competition from less desirable understory plants and provides shade for seedlings.
- Adequate site preparation controls initial plant competition, and spraying controls the subsequent growth of less desirable plants.
- Trees suitable for planting include Douglas fir.
- Highlead logging or other logging methods that fully or partially suspend logs should be used because they are less damaging to the soil.
- Avoiding excessive disturbance of the soil, seeding roads, cuts, and landings, and installing water bars and culverts reduce the risk of erosion.
- Spraying, cutting, or girdling eliminates unwanted weeds, brush, or trees.
- Thinning before trees reach commercial size and selectively cutting mature trees improve the stands.

#### **Grazable understory**

*Common forest understory plants:* Graylock soil—Rocky Mountain maple, chokecherry, Oregongrape, Fendler meadowrue, heartleaf arnica, elk sedge; Broad Canyon soil—Rocky Mountain maple, Oregongrape, Fendler meadowrue, heartleaf arnica, elk sedge

*Potential production of air-dry vegetation per acre:* 400 to 1,000 pounds

#### *General management considerations:*

- When the timber stand reaches potential growth (more than 70 percent canopy), the understory is sparse and has little value as forage. When the overstory is less dense, the understory provides good forage.
- Recently burned or logged areas can be grazed until competition from trees eliminates the forage.
- Seeding disturbed areas to suitable plants increases forage production.

- Grazing should be deferred until tree seedlings are well established.

### ***Interpretive Groups***

*Land capability classification:* VIIe, nonirrigated

## **73—Greenleaf very fine sandy loam, 0 to 4 percent slopes**

### ***Composition***

Greenleaf soil and similar inclusions—80 percent

Contrasting inclusions—20 percent

### ***Setting***

*Position on landscape:* Lacustrine terraces

*Elevation:* About 2,900 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 51 degrees F

*Frost-free season:* About 130 days

### ***Characteristics of the Greenleaf Soil***

#### *Typical profile:*

0 to 5 inches—pale brown very fine sandy loam

5 to 14 inches—pale brown and very pale brown silty clay loam

14 to 30 inches—white silt loam

30 to 60 inches—slightly consolidated silt loam

*Depth class:* Very deep

*Depth to consolidated material:* 12 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* High

*Restriction affecting rooting depth:* Consolidated material at a depth of 12 to 40 inches

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

### ***Contrasting Inclusions***

Royal, Shano, and Vanderhoff soils; soils that are similar to the Greenleaf soil but are more than 25 percent clay in the lower part; soils that have slopes of more than 4 percent

### ***Use and Management***

*Major use:* Irrigated cropland

*Minor use:* Livestock grazing in a few small areas (less than 10 percent of the map unit) that support native vegetation

*Major management factors:* Available water capacity, depth to consolidated material, hazard of wind

erosion, permeability, rooting depth

### **Cropland**

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- Suitable irrigation methods are sprinkler, furrow, and corrugation systems.
- Leveling is needed in sloping areas for efficient application and removal of irrigation water.
- Land smoothing that involves only shallow cuts helps to avoid exposing consolidated sediment.
- Surface drains are needed to remove tailwater if surface irrigation is used.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- The hazard of wind erosion is reduced by maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the surface of the soil rough.

### **Interpretive Groups**

*Land capability classification:* IIe, irrigated

## **74—Greenleaf-Shano complex, 4 to 12 percent slopes**

### **Composition**

Greenleaf soil and similar inclusions—50 percent  
Shano soil and similar inclusions—25 percent  
Contrasting inclusions—25 percent

### **Setting**

*Position on landscape:* Lacustrine terraces

*Elevation:* About 3,000 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 51 degrees F

*Frost-free season:* About 130 days

### **Characteristics of the Greenleaf Soil**

*Typical profile:*

- 0 to 5 inches—pale brown loam
- 5 to 14 inches—pale brown and very pale brown silty clay loam
- 14 to 30 inches—white silt loam

30 to 60 inches—slightly consolidated silt loam

*Depth class:* Very deep

*Depth to consolidated material:* 12 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* High

*Restriction affecting rooting depth:* Consolidated material at a depth of 12 to 40 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Characteristics of the Shano Soil**

*Typical profile:*

0 to 15 inches—pale brown silt loam

15 to 26 inches—white silt loam

26 to 42 inches—white very fine sandy loam

42 to 60 inches—pale brown fine sandy loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Purdam, Truesdale, Royal, and Vanderhoff soils; soils that are similar to the Greenleaf soil but have coarser textured material in the middle part; soils that have slopes of less than 4 percent or more than 12 percent

### **Use and Management**

*Major uses:* Rangeland, irrigated cropland

*Major management factors:* Available water capacity, depth to consolidated material, hazard of water erosion, hazard of wind erosion, permeability, low precipitation

### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation and by the depth to consolidated material in the Greenleaf soil.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation.
- Plants that can tolerate droughtiness are suitable for seeding.
- Installation of pipelines is limited by the depth to

consolidated material in the Greenleaf soil.

### **Cropland**

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- The best suited irrigation method is a sprinkler system.
- The risk of erosion is increased if row crops are grown.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- Farming across the slope, keeping tillage at a minimum, maintaining a cloddy surface, maintaining crop residue on or near the surface, and maintaining tilth and the content of organic matter reduce the hazards of wind erosion and water erosion.

### **Interpretive Groups**

*Land capability classification:* IVE, irrigated and nonirrigated

*Range site:* Loamy, 8- to 10-inch precipitation zone

## **75—Haplaquolls-Xerofluvents complex, 0 to 2 percent slopes**

### **Composition**

Haplaquolls and similar inclusions—40 percent  
Xerofluvents and similar inclusions—40 percent  
Contrasting inclusions—20 percent

### **Setting**

*Position on landscape:* Flood plains

*Elevation:* About 4,200 feet

*Average annual precipitation:* About 19 inches

*Average annual air temperature:* About 45 degrees F

*Frost-free season:* About 80 days

### **Characteristics of the Haplaquolls**

*Percent of rock fragments on the surface:* 0 to 25 percent cobbles and pebbles

*Representative profile:*

- 0 to 12 inches—dark gray and gray silt loam
- 12 to 30 inches—gray clay loam

30 to 38 inches—gray loam

38 to 44 inches—grayish brown silty clay

44 to 54 inches—very pale brown sandy clay loam

54 to 60 inches—very pale brown loamy sand

*Depth class:* Very deep

*Drainage class:* Somewhat poorly drained or poorly drained

*Permeability:* Slow to rapid

*Available water capacity:* Low to high

*Potential rooting depth:* 60 inches or more

*Restriction affecting rooting depth:* Water table at a depth of 6 to 36 inches

*Runoff:* Slow to ponded

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

*Depth to water table:* 6 to 36 inches

*Frequency of flooding:* Occasional

### **Characteristics of the Xerofluvents**

*Percent of rock fragments on the surface:* 0 to 30 percent cobbles and pebbles

*Representative profile:*

0 to 3 inches—brown fine sandy loam

3 to 6 inches—brown loamy fine sand

6 to 9 inches—light yellowish brown sand

9 to 12 inches—pale brown loamy fine sand

12 to 28 inches—light brownish gray and light yellowish brown fine sandy loam

28 to 60 inches—variegated sand, gravel, and cobbles

*Depth class:* Very deep

*Depth to sand, gravel, and cobbles:* 10 to 40 inches

*Drainage class:* Well drained to somewhat poorly drained

*Permeability:* Slow to rapid

*Available water capacity:* Low or moderate

*Restriction affecting rooting depth:* Water table at a depth of 12 to 60 inches from April through September

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

*Depth to water table:* 12 to 60 inches from April through September; more than 60 inches the rest of the year

### **Contrasting Inclusions**

Houk and Brinegar soils; soils that have slopes of more than 2 percent

### **Use and Management**

*Major uses:* Rangeland, wildlife habitat, homesites in a few areas

*Major management factors:* Available water capacity, pebbles and cobbles on the surface, depth to gravelly material, flooding, risk of seepage, wetness

### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Haplaquolls—tufted hairgrass, sedges;  
Xerofluvents—slender wheatgrass, sedges, tufted hairgrass

*General management considerations:*

- The suitability of this map unit for range seeding is good. Seeding is limited by the cobbles and pebbles on the surface.
- Plants that can tolerate wetness are suitable for seeding.
- Installation of pipelines is limited by the underlying coarse fragments in some areas.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.

### **Building site development**

*General management considerations:*

- Excavation is hampered by the cobbles in the soil.
- Cuts are not stable and therefore are subject to slumping.
- Frost action limits construction of access roads, driveways, and buildings.
- This map unit is a good source of roadfill.
- Septic tank absorption fields can be expected to function poorly because of wetness.
- If the density of housing is moderate to high, a community sewage system may be needed.

### **Interpretive Groups**

*Land capability classification:* Vw, nonirrigated

*Range site:* Haplaquolls—Wet Meadow; Xerofluvents—Semiwet Meadow

## **76—Harahill-Willho association, 0 to 12 percent slopes**

### **Composition**

Harahill soil and similar inclusions—40 percent  
Willho soil and similar inclusions—35 percent  
Contrasting inclusions—25 percent

### **Setting**

*Position on landscape:* Basalt plains, alluvial terraces  
*Elevation:* About 5,300 feet  
*Average annual precipitation:* About 15 inches  
*Average annual air temperature:* About 42 degrees F  
*Frost-free season:* About 65 days

### **Characteristics of the Harahill Soil**

*Slope:* 2 to 12 percent

*Percent of rock fragments on the surface:* 1 to 3 percent stones

*Typical profile:*

0 to 4 inches—dark brown stony loam  
4 to 16 inches—dark brown and brown loam  
16 to 21 inches—dark brown cobbly loam  
21 to 28 inches—brown very gravelly loam  
28 to 32 inches—unweathered bedrock

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Low

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Characteristics of the Willho Soil**

*Slope:* 0 to 8 percent

*Typical profile:*

0 to 6 inches—light yellowish brown and brown silt loam  
6 to 13 inches—brown silty clay loam  
13 to 20 inches—brown clay loam  
20 to 27 inches—brown clay  
27 to 47 inches—reddish yellow, very strongly cemented hardpan  
47 to 74 inches—light yellowish brown silty clay loam

*Depth class:* Moderately deep

*Depth to hardpan (not rippable):* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Very slow

*Available water capacity:* Moderate

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Simonton and Bauscher soils; soils that are similar to the Willho soil but have 5 to 20 percent of the surface covered with stones; Rubble land; soils that have slopes of more than 12 percent

### **Use and Management**

*Major use:* Rangeland

*Major management factors:* Stones on the surface, depth to bedrock, depth to the hardpan, hazard of water erosion

*Dominant vegetation in potential natural plant community:*

Harahill soil—mountain big sagebrush, Idaho fescue, bluebunch wheatgrass; Willho soil—low sagebrush, bluebunch wheatgrass, Idaho fescue

*General management considerations:*

- Forage production is limited mainly by the depth to bedrock or to the hardpan and by the available water capacity.
- Because the cold soil temperatures limit plant growth, grazing should be delayed until the soil has warmed and the forage plants have achieved sufficient growth.
- The suitability of this map unit for range seeding is fair. Seeding is limited by the stones on the surface in some areas.
- Plants that can tolerate droughtiness are suitable for seeding.
- The use of equipment is limited by the stones on the surface in some areas.
- Loss of the upper layer results in a severe decrease in the potential of the soil to produce forage.
- Installation of pipelines is limited by the depth to bedrock or to the hardpan.

**Interpretive Groups**

*Land capability classification:* Harahill soil—IVe, nonirrigated; Willho soil—IVs, nonirrigated

*Range site:* Harahill soil—Loamy, 12- to 16-inch precipitation zone; Willho soil—Shallow Stony Loam, 8- to 16-inch precipitation zone

**77—Haw-Farrot complex, 4 to 20 percent slopes****Composition**

Haw soil and similar inclusions—45 percent  
Farrot soil and similar inclusions—30 percent  
Contrasting inclusions—25 percent

**Setting**

*Position on landscape:* Granitic hills

*Elevation:* About 3,900 feet

*Average annual precipitation:* About 13 inches

*Average annual air temperature:* About 49 degrees F

*Frost-free season:* About 110 days

**Characteristics of the Haw Soil**

*Position on landscape:* South- and west-facing side slopes, foot slopes

*Typical profile:*

0 to 9 inches—dark grayish brown and grayish brown loam

9 to 12 inches—brown clay loam

12 to 25 inches—light yellowish brown and pale brown sandy clay loam

25 to 37 inches—very pale brown coarse sandy loam

37 to 60 inches—very pale brown loamy coarse sand

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

**Characteristics of the Farrot Soil**

*Position on landscape:* East-facing side slopes, shoulder slopes, ridges

*Typical profile:*

0 to 10 inches—dark grayish brown and grayish brown coarse sandy loam

10 to 24 inches—light yellowish brown and brown sandy clay loam

24 to 30 inches—light yellowish brown very gravelly coarse sandy loam

30 inches—unweathered bedrock

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Low

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

**Contrasting Inclusions**

Lankbush, Lanktree, and Rainey soils; Van Dusen soils on toe slopes and in drainageways; soils that are more than 35 percent gravel throughout; soils that have slopes of more than 20 percent

**Use and Management**

*Major use:* Rangeland

*Major management factors:* Available water capacity, hazard of water erosion, low precipitation

*Dominant vegetation in potential natural plant community:*

Haw soil—Wyoming big sagebrush, bluebunch wheatgrass; Farrot soil—mountain big sagebrush, bluebunch wheatgrass

*General management considerations:*

- Forage production is limited mainly by low



precipitation and the hazard of water erosion in the steeper areas.

- The suitability of this map unit for range seeding is fair.
- Plants that can tolerate droughtiness are suitable for seeding.

### ***Interpretive Groups***

*Land capability classification:* VIe, nonirrigated

*Range site:* Haw soil—Loamy, 10- to 12-inch precipitation zone; Farrot soil—Loamy, 12- to 16-inch precipitation zone

## **78—Haw-Lankbush complex, 4 to 20 percent slopes**

### ***Composition***

Haw soil and similar inclusions—40 percent

Lankbush soil and similar inclusions—35 percent

Contrasting inclusions—25 percent

### ***Setting***

*Position on landscape:* Dissected fan terraces

*Elevation:* About 3,700 feet

*Average annual precipitation:* About 12 inches

*Average annual air temperature:* About 49 degrees F

*Frost-free season:* About 120 days

### ***Characteristics of the Haw Soil***

*Position on landscape:* Foot slopes, toe slopes

*Typical profile:*

0 to 9 inches—dark grayish brown and grayish brown loam

9 to 12 inches—brown clay loam

12 to 25 inches—light yellowish brown and pale brown sandy clay loam

25 to 37 inches—very pale brown coarse sandy loam

37 to 60 inches—very pale brown loamy coarse sand

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### ***Characteristics of the Lankbush Soil***

*Position on landscape:* Hillsides, shoulder slopes

*Typical profile:*

0 to 8 inches—grayish brown and light brownish gray sandy loam

8 to 12 inches—pale brown coarse sandy loam

12 to 27 inches—light yellowish brown and pale brown sandy clay loam

27 to 50 inches—very pale brown sandy clay loam

50 to 60 inches—variegated sand

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### ***Contrasting Inclusions***

Lanktree soils; gently sloping Chilcott soils on ridges;

Farrot soils on shoulder slopes and ridges; Jenness soils on the bottom of drainageways; soils that have slopes of more than 20 percent

### ***Use and Management***

*Major use:* Rangeland

*Major management factors:* Hazard of water erosion, low precipitation

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, bluebunch wheatgrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.

- The suitability of this map unit for range seeding is fair. Seeding is limited by the hazard of water erosion in the steeper areas.

- Plants that can tolerate droughtiness are suitable for seeding.

### ***Interpretive Groups***

*Land capability classification:* VIe, nonirrigated

*Range site:* Loamy, 10- to 12-inch precipitation zone

## **79—Hawsley loamy sand, 0 to 12 percent slopes**

### ***Composition***

Hawsley soil and similar inclusions—75 percent

Contrasting inclusions—25 percent

### ***Setting***

*Position on landscape:* Alluvial terraces, drainageways, dunes

*Elevation:* About 2,600 feet

*Average annual precipitation:* About 7 inches

*Average annual air temperature:* About 52 degrees F

*Frost-free season:* About 135 days

### **Characteristics of the Hawsley Soil**

*Typical profile:*

0 to 6 inches—pale brown loamy sand

6 to 60 inches—pale brown sand

*Other characteristics:* Lake sediments or very gravelly material at a depth of more than 40 inches in some pedons

*Depth class:* Very deep

*Drainage class:* Excessively drained

*Permeability:* Very rapid

*Available water capacity:* Low

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Severe

*Salinity:* Slightly saline between depths of 6 and 60 inches

### **Contrasting Inclusions**

Mazuma, Dors, Garbutt, and Royal soils; soils that are moderately well drained; soils that have slopes of more than 12 percent

### **Use and Management**

*Major uses:* Rangeland, irrigated cropland, homesites in a few areas

*Major management factors:* Available water capacity, hazard of wind erosion, risk of seepage, low precipitation

### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Greasewood, basin wildrye, inland saltgrass

*General management considerations:*

- Forage production is limited mainly by the low available water capacity and low precipitation.
- The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation, the low available water capacity, and the hazard of wind erosion.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.

### **Cropland**

*General management considerations:*

- Production of irrigated crops is limited by the low available water capacity and the hazard of wind erosion.

- The best suited irrigation method is a sprinkler system.
- Regulating the rate at which irrigation water is applied helps to avoid overirrigating and the leaching of plant nutrients.
- The hazard of wind erosion is reduced by maintaining crop residue on the surface, planting field windbreaks, keeping tillage at a minimum, and keeping the surface of the soil rough.
- Returning crop residue to the soil, applying gypsum, and leaching out the salts reduce the content of salts.

### **Building site development**

*General management considerations:*

- Excavation can expose soil material that is highly susceptible to wind erosion.
- Cuts are not stable and therefore are subject to slumping.
- This map unit is limited as a site for septic tank absorption fields because of the very rapid permeability, which causes poor filtration of the effluent and can result in pollution of the water supply.
- Onsite investigation is needed to locate areas suitable for use as sites for septic tank absorption fields.

### **Interpretive Groups**

*Land capability classification:* IVe, irrigated; VIIe, nonirrigated

*Range site:* Saline Bottom, 8- to 12-inch precipitation zone

## **80—Hotcreek-Troughs association, 1 to 15 percent slopes**

### **Composition**

Hotcreek soil and similar inclusions—45 percent  
Troughs soil and similar inclusions—35 percent  
Contrasting inclusions—20 percent

### **Setting**

*Position on landscape:* Fan terraces

*Elevation:* About 4,000 feet

*Average annual precipitation:* About 10 inches

*Average annual air temperature:* About 49 degrees F

*Frost-free season:* About 110 days

### **Characteristics of the Hotcreek Soil**

*Slope:* 1 to 15 percent

*Percent of rock fragments on the surface:* 5 to 15 percent stones

*Typical profile:*

0 to 2 inches—light brownish gray very stony loam

- 2 to 4 inches—light gray very gravelly loam
- 4 to 8 inches—light brownish gray very cobbly clay loam
- 8 to 11 inches—white, discontinuous, fractured hardpan
- 11 to 14 inches—white, very strongly cemented hardpan
- 14 inches—unweathered bedrock

*Depth class:* Shallow

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Low

*Potential rooting depth:* 10 to 20 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

### **Characteristics of the Troughs Soil**

*Slope:* 2 to 12 percent

*Percent of rock fragments on the surface:* 1 to 3 percent stones

*Typical profile:*

- 0 to 4 inches—light brownish gray stony loam
- 4 to 11 inches—brown cobbly loam
- 11 to 16 inches—pale brown very gravelly clay loam
- 16 to 21 inches—very pale brown, very strongly cemented hardpan
- 21 to 36 inches—very pale brown extremely gravelly loam
- 36 inches—fractured, unweathered bedrock

*Depth class:* Shallow

*Depth to hardpan (not rippable):* 15 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Low

*Potential rooting depth:* 10 to 20 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

### **Contrasting Inclusions**

Willhill, Cowgil, and Sidlake soils; Rock outcrop

### **Use and Management**

*Major use:* Rangeland

*Major management factors:* Available water capacity, stones on the surface, depth to the hardpan, rooting depth, hazard of water erosion, low precipitation

*Dominant vegetation in potential natural plant community:*

- Hotcreek soil—low sagebrush, Thurber needlegrass;
- Troughs soil—Wyoming big sagebrush, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low

precipitation, the low available water capacity, and the restricted rooting depth.

- The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation and the stones on the surface.
- The use of equipment is limited by the stones on the surface.
- Loss of the upper layer results in a severe decrease in the potential of the soil to produce forage.
- Installation of pipelines is limited by depth to the hardpan.

### **Interpretive Groups**

*Land capability classification:* Hotcreek soil—VII<sub>s</sub>, nonirrigated; Troughs soil—VI<sub>e</sub>, nonirrigated

*Range site:* Hotcreek soil—Shallow Stony, 8- to 12-inch precipitation zone; Troughs soil—Loamy, 7- to 10-inch precipitation zone

## **81—Houk silty clay loam, 0 to 2 percent slopes**

### **Composition**

Houk soil and similar inclusions—75 percent

Contrasting inclusions—25 percent

### **Setting**

*Position on landscape:* Flood plains, stream terraces

*Elevation:* About 5,100 feet

*Average annual precipitation:* About 15 inches

*Average annual air temperature:* About 42 degrees F

*Frost-free season:* About 70 days

### **Characteristics of the Houk Soil**

*Typical profile:*

- 0 to 14 inches—dark gray and light gray silty clay loam
- 14 to 35 inches—dark grayish brown silty clay
- 35 to 47 inches—light brownish gray and light gray silty clay loam
- 47 to 60 inches—light brownish gray silty clay loam

*Depth class:* Very deep

*Drainage class:* Somewhat poorly drained

*Permeability:* Slow

*Available water capacity:* High

*Restriction affecting rooting depth:* Water table at a depth of 30 to 60 inches from April through September

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Depth to water table:* 30 to 60 inches from April through

September; more than 60 inches the rest of the year

*Frequency of flooding:* Frequent in spring

### ***Contrasting Inclusions***

Haplaquolls; Brinegar soils; soils that are similar to the Houk soil but are poorly drained; soils that have sandy material at a depth of 20 to 40 inches

### ***Use and Management***

*Major uses:* Cropland, hayland, pasture, rangeland

*Major management factors:* Flooding, wetness, permeability

### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Tufted hairgrass, sedges, silver sagebrush

*General management considerations:*

- Cold soil temperatures limit plant growth.
- The suitability of this map unit for range seeding is good. Seeding is limited by wetness.
- Plants that can tolerate wetness are suitable for planting.
- Grazing should be delayed until the soil has warmed, the forage plants have achieved sufficient growth, and the soil is adequately drained and is firm enough to withstand trampling by livestock.

### **Cropland**

*General management considerations:*

- The short growing season limits the choice of suitable crops.
- Seasonal flooding and wetness limit the production and harvesting of crops.
- The best suited irrigation method is a sprinkler system.
- The seasonal high water table provides supplemental moisture for plants.
- Providing drainage is difficult in some areas because of poor outlets.
- Subsurface drains can be used to reduce wetness if suitable outlets are available.
- Because of the slow permeability of the silty clay layer, applications of irrigation water should be regulated so that water does not stand on the surface and damage the crops.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Keeping sprinkler irrigation rates at a minimum reduces surface crusting.

### **Hayland and pasture**

*General management considerations:*

- Only the hay and pasture plants that can tolerate periodic inundation and seasonal wetness are suitable for seeding.
- The seasonal high water table provides supplemental moisture for plants.
- In favorable years the vegetation can be cut for hay.

### ***Interpretive Groups***

*Land capability classification:* IIIw, irrigated

*Range site:* Semiwet Meadow

## **82—Immiant gravelly loam, 0 to 12 percent slopes**

### ***Composition***

Immiant soil and similar inclusions—75 percent

Contrasting inclusions—25 percent

### ***Setting***

*Position on landscape:* Foothills

*Elevation:* About 4,400 feet

*Average annual precipitation:* About 13 inches

*Average annual air temperature:* About 46 degrees F

*Frost-free season:* About 90 days

### ***Characteristics of the Immiant Soil***

*Percent of rock fragments on the surface:* 25 percent pebbles

*Typical profile:*

0 to 10 inches—brown gravelly loam

10 to 20 inches—yellowish brown gravelly clay loam

20 to 28 inches—dark yellowish brown cobbly clay loam

28 inches—unweathered bedrock

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Moderate

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### ***Contrasting Inclusions***

Brownlee, Ruckles, and Badge soils; soils that have slopes of more than 12 percent; Rock outcrop

### ***Use and Management***

*Major use:* Rangeland

*Major management factors:* Depth to bedrock, hazard of water erosion, low precipitation

*Dominant vegetation in potential natural plant community:*

Mountain big sagebrush, bluebunch wheatgrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation.
- Plants that can tolerate droughtiness are suitable for seeding.
- Installation of pipelines is limited by the depth to bedrock.

### ***Interpretive Groups***

*Land capability classification:* V1e, nonirrigated

*Range site:* Loamy, 12- to 16-inch precipitation zone

## **83—Immiant-Ruckles-Rock outcrop complex, 4 to 20 percent slopes**

### ***Composition***

Immiant soil and similar inclusions—35 percent

Ruckles soil and similar inclusions—30 percent

Rock outcrop—15 percent

Contrasting inclusions—20 percent

### ***Setting***

*Position on landscape:* Foothills

*Elevation:* About 4,800 feet

*Average annual precipitation:* About 13 inches

*Average annual air temperature:* About 46 degrees F

*Frost-free season:* About 90 days

### ***Characteristics of the Immiant Soil***

*Position on landscape:* Side slopes, foot slopes

*Slope:* 4 to 20 percent

*Percent of rock fragments on the surface:* 25 percent pebbles

*Typical profile:*

0 to 10 inches—brown gravelly loam

10 to 20 inches—yellowish brown gravelly clay loam

20 to 28 inches—dark yellowish brown cobbly clay loam

28 inches—unweathered bedrock

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Moderate

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### ***Characteristics of the Ruckles Soil***

*Position on landscape:* Ridges, shoulder slopes

*Slope:* 4 to 10 percent

*Percent of rock fragments on the surface:* 25 percent cobbles and pebbles

*Typical profile:*

0 to 6 inches—brown very gravelly clay loam

6 to 11 inches—dark brown extremely gravelly clay

11 inches—fractured, unweathered bedrock

*Depth class:* Shallow

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Low

*Potential rooting depth:* 10 to 20 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### ***Characteristics of the Rock Outcrop***

*Kind of material:* Exposed basalt or rhyolite that is fractured in some places

### ***Contrasting Inclusions***

Badge and Brownlee soils; Oland soils on steep, north-facing slopes; soils that have slopes of more than 20 percent

### ***Use and Management***

*Major use:* Rangeland

*Major management factors:* Available water capacity, depth to bedrock, hazard of water erosion, areas of Rock outcrop

*Dominant vegetation in potential natural plant community:* Immiant soil—mountain big sagebrush, bluebunch wheatgrass; Ruckles soil—low sagebrush, bluebunch wheatgrass

*General management considerations:*

- Forage production is limited mainly by the low available water capacity.
- The suitability of this map unit for range seeding is fair. Seeding is limited by the low available water capacity and the hazard of water erosion in the steeper areas.
- Plants that can tolerate droughtiness are suitable for seeding.
- Loss of the upper layer results in a severe decrease in the potential of the soil to produce forage.
- Installation of pipelines is limited by the depth to bedrock.

- Construction of fences on the Ruckles soil is limited by the depth to bedrock.

### ***Interpretive Groups***

*Land capability classification:* Vle, nonirrigated

*Range site:* Immiant soil—Loamy, 12- to 16-inch precipitation zone; Ruckles soil—Shallow Stony Loam, 8- to 16-inch precipitation zone

## **84—Jacquith loamy sand, 4 to 12 percent slopes**

### ***Composition***

Jacquith soil and similar inclusions—80 percent

Contrasting inclusions—20 percent

### ***Setting***

*Position on landscape:* Fan terraces

*Elevation:* About 2,900 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 51 degrees F

*Frost-free season:* About 130 days

### ***Characteristics of the Jacquith Soil***

*Typical profile:*

0 to 10 inches—dark grayish brown and yellowish brown loamy sand

10 to 30 inches—brown loamy sand

30 to 60 inches—weakly cemented hardpan stratified with loamy sand

*Depth class:* Moderately deep

*Depth to hardpan (rippable):* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Rapid

*Available water capacity:* Low

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Severe

### ***Contrasting Inclusions***

Truesdale, Quincy, Scoon, Davey, and Royal soils; soils that are similar to the Jacquith soil but have very gravelly material below the hardpan; soils that have slopes of more than 12 percent

### ***Use and Management***

*Major use:* Rangeland

*Major management factors:* Available water capacity, depth to the hardpan, hazard of wind erosion, rooting depth, risk of seepage, low precipitation

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation and the low available water capacity.
- The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation, the low available water capacity, and the hazard of wind erosion.
- Installation of pipelines is limited by depth to the hardpan.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.

### ***Interpretive Groups***

*Land capability classification:* VIIe, nonirrigated

*Range site:* Sandy Loam, 8- to 12-inch precipitation zone

## **85—Jacquith loamy fine sand, 1 to 8 percent slopes**

### ***Composition***

Jacquith soil and similar inclusions—75 percent

Contrasting inclusions—25 percent

### ***Setting***

*Position on landscape:* Fan terraces

*Elevation:* About 3,000 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 51 degrees F

*Frost-free season:* About 130 days

### ***Characteristics of the Jacquith Soil***

*Typical profile:*

0 to 4 inches—dark grayish brown loamy fine sand

4 to 10 inches—yellowish brown loamy sand

10 to 30 inches—brown loamy sand

30 to 60 inches—weakly cemented hardpan stratified with loamy sand

*Depth class:* Moderately deep

*Depth to hardpan (rippable):* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Rapid

*Available water capacity:* Low

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Severe

**Contrasting Inclusions**

Truesdale, Quincy, Davey, Scoon, and Royal soils; soils that are similar to the Jacquith soil but have very gravelly material below the hardpan

**Use and Management**

*Major uses:* Rangeland, irrigated cropland (mainly in areas that have slopes of less than 4 percent)

*Major management factors:* Available water capacity, depth to the hardpan, hazard of wind erosion, rooting depth, low precipitation

**Rangeland**

*Dominant vegetation in potential natural plant community:*

Basin big sagebrush, Indian ricegrass, needleandthread

*General management considerations:*

- Forage production is limited mainly by low precipitation and the low available water capacity.
- The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation and the hazard of wind erosion.
- Installation of pipelines is limited by depth to the hardpan.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.

**Cropland**

*General management considerations:*

- Production of irrigated crops is limited by the low available water capacity and the hazard of wind erosion.
- The best suited irrigation method is a sprinkler system.
- Regulating the rate at which irrigation water is applied helps to avoid overirrigating and the leaching of plant nutrients.
- The hazard of wind erosion is reduced by maintaining crop residue on the surface, planting field windbreaks, keeping tillage at a minimum, and keeping the surface of the soil rough.

**Interpretive Groups**

*Land capability classification:* IVe, irrigated; VIIe, nonirrigated

*Range site:* Sand, 8- to 12-inch precipitation zone

**86—Jacquith-Quincy loamy sands, 0 to 12 percent slopes****Composition**

Jacquith soil and similar inclusions—45 percent

Quincy soil and similar inclusions—30 percent

Contrasting inclusions—25 percent

**Setting**

*Position on landscape:* Dissected alluvial terraces

*Elevation:* About 3,000 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 51 degrees F

*Frost-free season:* About 130 days

**Characteristics of the Jacquith Soil**

*Position on landscape:* Interdunes

*Slope:* 0 to 8 percent

*Typical profile:*

0 to 10 inches—dark grayish brown and yellowish brown loamy sand

10 to 30 inches—brown loamy sand

30 to 60 inches—weakly cemented hardpan stratified with loamy sand

*Depth class:* Moderately deep

*Depth to hardpan (rippable):* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Rapid

*Available water capacity:* Low

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Severe

**Characteristics of the Quincy Soil**

*Position on landscape:* Dunes

*Slope:* 4 to 12 percent

*Typical profile:*

0 to 3 inches—light gray loamy sand

3 to 60 inches—light gray fine sand

*Depth class:* Very deep

*Drainage class:* Excessively drained

*Permeability:* Rapid

*Available water capacity:* Low

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Severe

**Contrasting Inclusions**

Truesdale, Abgese, Scoon, and Davey soils; soils that are 30 to 60 percent gravel between depths of 20 and 40 inches

**Use and Management**

*Major use:* Rangeland

*Major management factors:* Available water capacity, depth to the hardpan, hazard of wind erosion,

rooting depth, low precipitation

*Dominant vegetation in potential natural plant community:*

Basin big sagebrush, Indian ricegrass,  
needleandthread

*General management considerations:*

- Forage production is limited mainly by low precipitation and the low available water capacity.
- The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation, the low available water capacity, and the hazard of wind erosion.
- Installation of pipelines is limited by the hardpan in the Jacquith soil.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.

### ***Interpretive Groups***

*Land capability classification:* VIIe, nonirrigated

*Range site:* Sand, 8- to 12-inch precipitation zone

## **87—Karcas-Day-Rock outcrop complex, 2 to 15 percent slopes**

### ***Composition***

Karcas soil and similar inclusions—35 percent

Day soil and similar inclusions—30 percent

Rock outcrop—20 percent

Contrasting inclusions—15 percent

### ***Setting***

*Position on landscape:* Basalt plains, terraces

*Elevation:* About 4,900 feet

*Average annual precipitation:* About 12 inches

*Average annual air temperature:* About 46 degrees F

*Frost-free season:* About 90 days

### ***Characteristics of the Karcas Soil***

*Percent of rock fragments on the surface:* 20 percent stones and cobbles

*Typical profile:*

0 to 4 inches—grayish brown extremely stony silty clay

4 to 31 inches—brown and light brown clay

31 inches—unweathered bedrock

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Moderate

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Slight

### ***Characteristics of the Day Soil***

*Percent of rock fragments on the surface:* 5 to 15 percent stones and cobbles

*Typical profile:*

0 to 6 inches—brown very stony silty clay

6 to 40 inches—brown silty clay

40 to 65 inches—pale brown silty clay loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Very slow

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Slight

### ***Characteristics of the Rock Outcrop***

*Kind of material:* Exposed areas of bedrock, predominantly basalt

### ***Contrasting Inclusions***

Ruckles soils near areas of Rock outcrop; Chardoton soils that are on mounds and support big sagebrush; soils that are similar to the Day soil but have a hardpan at a depth of 20 to 40 inches; Rubble land; soils that have slopes of more than 15 percent; soils that are not stony

### ***Use and Management***

*Major use:* Rangeland

*Major management factors:* Stones and cobbles on the surface, depth to bedrock, potential for shrinking and swelling, low precipitation, areas of Rock outcrop

*Dominant vegetation in potential natural plant community:*

Low sagebrush, bluebunch wheatgrass

*General management considerations:*

- Forage production is limited mainly by the restricted rooting depth and low precipitation.
- The use of forage by livestock is limited by the stones and cobbles on the surface and by the areas of Rock outcrop.
- The suitability of this map unit for range seeding is poor. Seeding is limited by the stones and cobbles on the surface and by the areas of Rock outcrop.
- The use of equipment is limited by the stones and cobbles on the surface.
- Installation of pipelines is limited by the stones and cobbles on the surface, the potential for shrinking and swelling, and the depth to bedrock.
- Construction of fences is limited by the potential for shrinking and swelling and the depth to bedrock in some areas.



**Interpretive Groups***Land capability classification:* VIIs, nonirrigated*Range site:* Shallow Stony Loam, 8- to 16-inch precipitation zone**88—Kunaton silt loam, 0 to 4 percent slopes****Composition**

Kunaton soil and similar inclusions—75 percent

Contrasting inclusions—25 percent

**Setting***Position on landscape:* Basalt plains*Elevation:* About 3,200 feet*Average annual precipitation:* About 9 inches*Average annual air temperature:* About 51 degrees F*Frost-free season:* About 125 days**Characteristics of the Kunaton Soil***Typical profile:*

- 0 to 4 inches—very pale brown silt loam
- 4 to 10 inches—yellowish brown silty clay
- 10 to 12 inches—light yellowish brown silty clay loam
- 12 to 15 inches—white silt loam
- 15 to 31 inches—white, very strongly cemented hardpan
- 31 inches—unweathered bedrock

*Depth class:* Shallow*Depth to hardpan (not rippable):* 10 to 20 inches*Drainage class:* Well drained*Permeability:* Slow*Available water capacity:* Low*Potential rooting depth:* 10 to 20 inches*Runoff:* Slow*Hazard of water erosion:* Slight*Hazard of wind erosion:* Moderate**Contrasting Inclusions**

Chilcott and Colthorp soils; soils that have slopes of more than 4 percent

**Use and Management***Major use:* Rangeland*Major management factors:* Available water capacity, depth to bedrock, depth to the hardpan, hazard of wind erosion, rooting depth, low precipitation*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low

precipitation and the restricted rooting depth.

- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation.

- Installation of pipelines is limited by depth to the hardpan and to bedrock.

- Plants that can tolerate droughtiness are suitable for seeding.

**Interpretive Groups***Land capability classification:* VIs, nonirrigated*Range site:* Loamy, 8- to 10-inch precipitation zone**89—Kunaton-Chilcott silt loams, 2 to 12 percent slopes****Composition**

Kunaton soil and similar inclusions—45 percent

Chilcott soil and similar inclusions—30 percent

Contrasting inclusions—25 percent

**Setting***Position on landscape:* Basalt plains*Elevation:* About 3,800 feet*Average annual precipitation:* About 11 inches*Average annual air temperature:* About 49 degrees F*Frost-free season:* About 110 days**Characteristics of the Kunaton Soil***Typical profile:*

- 0 to 4 inches—very pale brown silt loam
- 4 to 10 inches—yellowish brown silty clay
- 10 to 12 inches—light yellowish brown silty clay loam
- 12 to 15 inches—white silt loam
- 15 to 31 inches—white, very strongly cemented hardpan
- 31 inches—unweathered bedrock

*Depth class:* Shallow*Depth to hardpan (not rippable):* 10 to 20 inches*Drainage class:* Well drained*Permeability:* Slow*Available water capacity:* Low*Potential rooting depth:* 10 to 20 inches*Runoff:* Slow or medium*Hazard of water erosion:* Moderate*Hazard of wind erosion:* Moderate**Characteristics of the Chilcott Soil***Typical profile:*

- 0 to 7 inches—light brownish gray and light gray silt loam

- 7 to 17 inches—brown silty clay
- 17 to 27 inches—light yellowish brown clay loam
- 27 to 33 inches—very pale brown loam
- 33 to 39 inches—white, very strongly cemented hardpan
- 39 to 67 inches—alternate layers of strongly cemented material (hardpan) and loam

*Depth class:* Moderately deep

*Depth to hardpan (not rippable):* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Moderate

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### ***Contrasting Inclusions***

Colthorp, Day, Chardoton, and Sebree soils; Rubble land; Rock outcrop; soils that are shallow to bedrock; soils that have slopes of more than 12 percent

### ***Use and Management***

*Major use:* Rangeland

*Major management factors:* Depth to bedrock, depth to the hardpan, hazard of water erosion, hazard of wind erosion, rooting depth, low precipitation

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, bluebunch wheatgrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation.
- Plants that can tolerate droughtiness are suitable for seeding.
- Installation of pipelines is limited by depth to the hardpan and to bedrock.

### ***Interpretive Groups***

*Land capability classification:* Vle, nonirrigated

*Range site:* Loamy, 10- to 12-inch precipitation zone

## **90—Lankbush sandy loam, 0 to 4 percent slopes**

### ***Composition***

Lankbush soil and similar inclusions—80 percent

Contrasting inclusions—20 percent

### ***Setting***

*Position on landscape:* Fan terraces

*Elevation:* About 3,000 feet

*Average annual precipitation:* About 10 inches

*Average annual air temperature:* About 51 degrees F

*Frost-free season:* About 130 days

### ***Characteristics of the Lankbush Soil***

*Typical profile:*

0 to 8 inches—grayish brown and light brownish gray sandy loam

8 to 12 inches—pale brown coarse sandy loam

12 to 21 inches—light yellowish brown sandy clay loam

21 to 27 inches—pale brown sandy clay loam

27 to 50 inches—very pale brown sandy clay loam

50 to 60 inches—variegated sand

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

### ***Contrasting Inclusions***

Jenness, Lanktree, Buko, and Davey soils; soils that have slopes of more than 4 percent

### ***Use and Management***

*Major use:* Irrigated cropland

*Major management factor:* Hazard of wind erosion

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- Suitable irrigation methods are sprinkler, furrow, and corrugation systems.
- Leveling is needed in sloping areas for efficient application and removal of irrigation water.
- Surface drains are needed to remove tailwater if surface irrigation is used.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Maintaining crop residue on the surface, planting field windbreaks, keeping tillage at a minimum, and keeping the surface of the soil rough reduce the hazard of wind erosion.

### ***Interpretive Groups***

*Land capability classification:* Ile, irrigated

**91—Lankbush-Lanktree complex, 4 to 30 percent slopes****Composition**

Lankbush soil and similar inclusions—40 percent

Lanktree soil and similar inclusions—35 percent

Contrasting inclusions—25 percent

**Setting**

*Position on landscape:* Dissected fan terraces

*Elevation:* About 3,300 feet

*Average annual precipitation:* About 10 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 120 days

**Characteristics of the Lankbush Soil**

*Position on landscape:* Ridges, south-facing side slopes

*Typical profile:*

0 to 8 inches—grayish brown and light brownish gray coarse sandy loam

8 to 12 inches—pale brown coarse sandy loam

12 to 21 inches—light yellowish brown sandy clay loam

21 to 27 inches—pale brown sandy clay loam

27 to 50 inches—very pale brown sandy clay loam

50 to 60 inches—variegated sand

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

**Characteristics of the Lanktree Soil**

*Position on landscape:* North-facing side slopes

*Typical profile:*

0 to 3 inches—light brownish gray loam

3 to 10 inches—light brownish gray clay loam

10 to 19 inches—brown clay

19 to 35 inches—yellowish brown sandy clay

35 to 43 inches—very pale brown sandy loam

43 to 60 inches—very pale brown gravelly loamy sand

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

**Contrasting Inclusions**

Jenness, Royal, Timmerman, Power, and Day soils; soils that have slopes of less than 4 percent

**Use and Management**

*Major use:* Rangeland

*Major management factors:* Hazard of water erosion, hazard of wind erosion, slope, low precipitation

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, bluebunch wheatgrass, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation.
- Plants that can tolerate droughtiness are suitable for seeding.
- The use of equipment is limited by the slope.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.

**Interpretive Groups**

*Land capability classification:* Vle, nonirrigated

*Range site:* Loamy, 10- to 12-inch precipitation zone

**92—Lankbush-Jenness association, 0 to 4 percent slopes****Composition**

Lankbush soil and similar inclusions—50 percent

Jenness soil and similar inclusions—30 percent

Contrasting inclusions—20 percent

**Setting**

*Position on landscape:* Fan terraces

*Elevation:* About 3,200 feet

*Average annual precipitation:* About 11 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 120 days

**Characteristics of the Lankbush Soil**

*Typical profile:*

0 to 8 inches—grayish brown and light brownish gray sandy loam

8 to 12 inches—pale brown coarse sandy loam

12 to 21 inches—light yellowish brown sandy clay loam

- 21 to 27 inches—pale brown sandy clay loam
- 27 to 50 inches—very pale brown sandy clay loam
- 50 to 60 inches—variegated sand

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

### **Characteristics of the Jenness Soil**

*Typical profile:*

- 0 to 6 inches—grayish brown sandy loam
- 6 to 12 inches—light brownish gray loam
- 12 to 36 inches—light brownish gray sandy loam
- 36 to 60 inches—light brownish gray gravelly loamy sand

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Moderate

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Royal, Elijah, Chilcott, and Davey soils; soils that have slopes of more than 4 percent

### **Use and Management**

*Major uses:* Rangeland, irrigated cropland

*Major management factors:* Hazard of wind erosion, risk of seepage, low precipitation

### **Rangeland**

*Dominant vegetation in potential natural plant community:*

- Lankbush soil—Wyoming big sagebrush, bluebunch wheatgrass, Thurber needlegrass; Jenness soil—basin big sagebrush, basin wildrye

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by the hazard of wind erosion and by low precipitation.
- Plants that can tolerate droughtiness are suitable for seeding.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.

### **Cropland**

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- Suitable irrigation methods are sprinkler, furrow, and corrugation systems.
- Leveling is needed in sloping areas for efficient application and removal of irrigation water.
- Surface drains are needed to remove tailwater if surface irrigation is used.
- Regulating the applications of irrigation water helps to control runoff and erosion and to avoid overirrigating and the leaching of plant nutrients.
- Maintaining crop residue on the surface, planting field windbreaks, keeping tillage at a minimum, and keeping the surface of the soil rough reduce the hazard of wind erosion.

### **Interpretive Groups**

*Land capability classification:* Lankbush soil—Ile, irrigated, and Vlc, nonirrigated; Jenness soil—Ilc, irrigated, and Vlc, nonirrigated

*Range site:* Lankbush soil—Loamy, 10- to 12-inch precipitation zone; Jenness soil—Loamy Bottom, 8- to 14-inch precipitation zone

## **93—Lanktree loam, 0 to 4 percent slopes**

### **Composition**

Lanktree soil and similar inclusions—75 percent

Contrasting inclusions—25 percent

### **Setting**

*Position on landscape:* Fan terraces

*Elevation:* About 3,000 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 51 degrees F

*Frost-free season:* About 130 days

### **Characteristics of the Lanktree Soil**

*Typical profile:*

- 0 to 3 inches—light brownish gray loam
- 3 to 10 inches—light brownish gray clay loam
- 10 to 19 inches—brown clay
- 19 to 35 inches—yellowish brown sandy clay
- 35 to 43 inches—very pale brown sandy loam
- 43 to 60 inches—very pale brown gravelly loamy sand

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Slow  
*Available water capacity:* High  
*Potential rooting depth:* 60 inches or more  
*Runoff:* Slow  
*Hazard of water erosion:* Slight  
*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Chardoton and Lankbush soils; soils that have slopes of more than 4 percent

### **Use and Management**

*Major uses:* Irrigated cropland, rangeland  
*Major management factors:* Hazard of wind erosion, permeability, low precipitation

### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, bluebunch wheatgrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation.
- Plants that can tolerate droughtiness are suitable for seeding.

### **Cropland**

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- Suitable irrigation methods are sprinkler, furrow, and corrugation systems.
- Leveling is needed in sloping areas for efficient application and removal of irrigation water.
- Surface drains are needed to remove tailwater if surface irrigation is used.
- Because permeability is slow, adjusting the length of runs helps to ensure adequate infiltration of water.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- Maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the surface of the soil rough reduce the hazard of wind erosion.

### **Interpretive Groups**

*Land capability classification:* IIe, irrigated; VIc, nonirrigated

*Range site:* Loamy, 10- to 12-inch precipitation zone

## **94—Lanktree-Chilcott loams, 0 to 12 percent slopes**

### **Composition**

Lanktree soil and similar inclusions—50 percent

Chilcott soil and similar inclusions—30 percent

Contrasting inclusions—20 percent

### **Setting**

*Position on landscape:* Dissected fan terraces

*Elevation:* About 3,400 feet

*Average annual precipitation:* About 11 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 120 days

### **Characteristics of the Lanktree Soil**

*Position on landscape:* Side slopes

*Slope:* 4 to 12 percent

*Typical profile:*

- 0 to 3 inches—light brownish gray loam
- 3 to 10 inches—light brownish gray clay loam
- 10 to 19 inches—brown clay
- 19 to 35 inches—yellowish brown sandy clay
- 35 to 43 inches—very pale brown sandy loam
- 43 to 60 inches—very pale brown gravelly loamy sand

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Characteristics of the Chilcott Soil**

*Position on landscape:* Ridges, remnants

*Slope:* 0 to 8 percent

*Typical profile:*

- 0 to 7 inches—light brownish gray and light gray loam
- 7 to 17 inches—brown silty clay
- 17 to 27 inches—light yellowish brown clay loam
- 27 to 33 inches—very pale brown loam
- 33 to 39 inches—white, very strongly cemented hardpan

39 to 67 inches—alternate layers of strongly cemented material (hardpan) and loam

*Depth class:* Moderately deep

*Depth to hardpan (not rippable):* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Moderate

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Haw, Sebree, Lankbush, and Elijah soils; soils that have slopes of more than 12 percent

### **Use and Management**

*Major use:* Rangeland

*Major management factors:* Depth to the hardpan, hazard of water erosion, hazard of wind erosion, permeability, rooting depth, low precipitation

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, bluebunch wheatgrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation.
- Plants that can tolerate droughtiness are suitable for seeding.
- Installation of pipelines is limited by depth to the hardpan in the Chilcott soil.

### **Interpretive Groups**

*Land capability classification:* Vle, nonirrigated

*Range site:* Loamy, 10- to 12-inch precipitation zone

## **95—Letha fine sandy loam, drained, 0 to 4 percent slopes**

### **Composition**

Letha soil and similar inclusions—80 percent

Contrasting inclusions—20 percent

### **Setting**

*Position on landscape:* Stream terraces

*Elevation:* About 2,400 feet

*Average annual precipitation:* About 7 inches

*Average annual air temperature:* About 52 degrees F

*Frost-free season:* About 145 days

### **Characteristics of the Letha Soil**

*Typical profile:*

0 to 8 inches—grayish brown fine sandy loam

8 to 48 inches—pale brown sandy loam

48 to 60 inches—very pale brown loamy sand

*Depth class:* Very deep

*Drainage class:* Moderately well drained as a result of artificial drainage

*Permeability:* Moderately rapid

*Available water capacity:* Moderate

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

*Depth to water table:* 48 to 72 inches from July through September; more than 72 inches the rest of the year

*Salinity:* Slightly saline

### **Contrasting Inclusions**

Mazuma, Grandview, Dors, and Ornea soils; soils that are moderately saline or strongly saline

### **Use and Management**

*Major use:* Irrigated cropland

*Major management factors:* Hazard of wind erosion, wetness

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- Suitable irrigation methods are sprinkler, furrow, and corrugation systems.
- Leveling is needed in sloping areas for efficient application and removal of irrigation water.
- Subsurface drains can be used to remove excess water and leached salts.
- Surface drains are needed to remove tailwater if surface irrigation is used.
- Regulating the applications of irrigation water helps to prevent a rise in the level of the water table and an increase in the concentration of salts and sodium in the soil.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- Maintaining crop residue on the surface, keeping

tillage at a minimum, and keeping the surface of the soil rough reduce the hazard of wind erosion.

- Applying gypsum, leaching out the salts, applying sulfur or sulfuric acid, growing green manure crops, and growing salt-tolerant crops and pasture plants reduce the content of salts.

### ***Interpretive Groups***

*Land capability classification:* IIs, irrigated

## **96—Letha loam, 0 to 2 percent slopes**

### ***Composition***

Letha soil and similar inclusions—80 percent

Contrasting inclusions—20 percent

### ***Setting***

*Position on landscape:* Stream terraces, flood plains

*Elevation:* About 2,500 feet

*Average annual precipitation:* About 7 inches

*Average annual air temperature:* About 52 degrees F

*Frost-free season:* About 145 days

### ***Characteristics of the Letha Soil***

*Typical profile:*

0 to 10 inches—light gray loam

10 to 24 inches—light gray fine sandy loam

24 to 60 inches—very pale brown fine sandy loam

*Depth class:* Very deep

*Drainage class:* Somewhat poorly drained

*Permeability:* Moderate

*Available water capacity:* High

*Restriction affecting rooting depth:* Water table at a depth of 36 to 48 inches from May through September

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

*Depth to water table:* 36 to 48 inches from May through September; more than 48 inches the rest of the year

*Salinity:* Slightly saline or moderately saline between depths of 6 and 60 inches

### ***Contrasting Inclusions***

Bram, Baldock, and Bramwell soils; soils that have slopes of more than 2 percent; soils that are moderately well drained

### ***Use and Management***

*Major uses:* Irrigated cropland, rangeland

*Major management factors:* Hazard of wind erosion, salinity, wetness

### ***Rangeland***

*Dominant vegetation in potential natural plant community:*

Greasewood, inland saltgrass, basin wildrye

*General management considerations:*

- The suitability of this map unit for range seeding is fair. Seeding is limited by wetness and salinity.
- Plants that can tolerate wetness and the content of salts are suitable for seeding.
- Grazing should be delayed until the soil is adequately drained and is firm enough to withstand trampling by livestock.

### ***Cropland***

*General management considerations:*

- Wetness limits the choice of plants, the period of cutting or grazing, and the production of deep-rooted crops.
- Salinity limits the production of crops.
- Shallow-rooted, water-tolerant plants and salt-tolerant grasses can be grown.
- Suitable irrigation methods are sprinkler, furrow, and corrugation systems.
- Leveling is needed for uniform application of water.
- Providing drainage is difficult in some areas because the outlets are poor.
- If suitable outlets are available, subsurface drains can be used to remove excess water and leached salts.
- Surface drains are needed to remove tailwater if surface irrigation is used.
- Regulating the applications of irrigation water helps to prevent a rise in the level of the water table and an increase in the concentration of salts and sodium in the soil.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- Maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the surface of the soil rough reduce the hazard of wind erosion.
- Returning crop residue to the soil, carefully applying irrigation water, providing adequate drainage, leaching out the salts, applying sulfur or sulfuric acid, and

growing green manure crops reduce the content of salts.

### ***Interpretive Groups***

*Land capability classification:* IVw, irrigated; VIs, nonirrigated

*Range site:* Semiwet Saline Meadow

## **97—Letha-Baldock loams, 0 to 2 percent slopes**

### ***Composition***

Letha soil and similar inclusions—55 percent

Baldock soil and similar inclusions—30 percent

Contrasting inclusions—15 percent

### ***Setting***

*Position on landscape:* Stream terraces, flood plains

*Elevation:* About 2,500 feet

*Average annual precipitation:* About 7 inches

*Average annual air temperature:* About 52 degrees F

*Frost-free season:* About 145 days

### ***Characteristics of the Letha Soil***

#### ***Typical profile:***

0 to 10 inches—light gray loam

10 to 24 inches—light gray fine sandy loam

24 to 60 inches—very pale brown fine sandy loam

*Depth class:* Very deep

*Drainage class:* Somewhat poorly drained

*Permeability:* Moderate

*Available water capacity:* Moderate

*Restriction affecting rooting depth:* Water table at a depth of 36 to 48 inches from May through September

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

*Depth to water table:* 36 to 48 inches from May through September; more than 48 inches the rest of the year

*Salinity:* Slightly saline or moderately saline between depths of 6 and 60 inches

### ***Characteristics of the Baldock Soil***

#### ***Typical profile:***

0 to 7 inches—light brownish gray loam

7 to 12 inches—light brownish gray silt loam

12 to 42 inches—white loam

42 to 60 inches—very pale brown loam

*Depth class:* Very deep

*Drainage class:* Poorly drained

*Permeability:* Moderate

*Available water capacity:* High

*Restriction affecting rooting depth:* Water table at a depth of 18 to 36 inches

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

*Depth to water table:* 18 to 36 inches

*Frequency of flooding:* Rare

*Salinity:* Moderately saline

### ***Contrasting Inclusions***

Bramwell, Grandview, and Bram soils; soils that have slopes of more than 2 percent; soils that are well drained

### ***Use and Management***

*Major uses:* Irrigated cropland, rangeland

*Major management factors:* Hazard of wind erosion, permeability, salinity, wetness

#### ***Rangeland***

*Dominant vegetation in potential natural plant community:*

Greasewood, inland saltgrass, basin wildrye

*General management considerations:*

- Forage production is limited mainly by salinity and the high water table.
- The suitability of this map unit for range seeding is fair. Seeding is limited by wetness and salinity.
- Plants that can tolerate wetness and the content of salts are suitable for seeding.
- Grazing should be delayed until the soil is adequately drained and is firm enough to withstand trampling by livestock.

#### ***Cropland***

*General management considerations:*

- Wetness limits the choice of plants, the period of cutting or grazing, and the production of deep-rooted crops.
- Salinity limits the production of crops.
- Shallow-rooted, water-tolerant plants and salt-tolerant grasses can be grown.
- Suitable irrigation methods are sprinkler, furrow, and corrugation systems.
- Leveling is needed for uniform application of water.
- Providing drainage is difficult in some areas because the outlets are poor.
- If suitable outlets are available, subsurface drains can be used to remove excess water and leached salts.



- Surface drains are needed to remove tailwater if surface irrigation is used.
- Regulating the applications of irrigation water helps to prevent a rise in the level of the water table and an increase in the concentration of salts and sodium in the soil and to control runoff and erosion.
- Because permeability is moderate, adjusting the length of runs helps to ensure adequate infiltration of water.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- Maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the surface of the soil rough reduce the hazard of wind erosion.
- Returning crop residue to the soil, carefully applying irrigation water, providing adequate drainage, leaching out the salts, applying sulfur or sulfuric acid, and growing green manure crops reduce the content of salts.

### ***Interpretive Groups***

*Land capability classification:* IVw, irrigated; VIs, nonirrigated

*Range site:* Semiwet Saline Meadow

## **98—Loray gravelly fine sandy loam, 0 to 12 percent slopes**

### ***Composition***

Loray soil and similar inclusions—75 percent

Contrasting inclusions—25 percent

### ***Setting***

*Position on landscape:* Fan terraces

*Elevation:* About 2,700 feet

*Average annual precipitation:* About 7 inches

*Average annual air temperature:* About 52 degrees F

*Frost-free season:* About 140 days

### ***Characteristics of the Loray Soil***

*Percent of rock fragments on the surface:* 15 to 30 percent pebbles

*Typical profile:*

0 to 6 inches—light yellowish brown gravelly fine sandy loam

6 to 13 inches—very pale brown gravelly fine sandy loam

13 to 60 inches—variegated extremely gravelly sand

*Depth class:* Very deep

*Depth to extremely gravelly material:* 10 to 20 inches

*Drainage class:* Excessively drained

*Permeability:* Moderately rapid

*Available water capacity:* Low

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Slight or moderate

*Hazard of wind erosion:* Moderate

### ***Contrasting Inclusions***

Dors, Ornea, Mazuma, Hawsley, and Buko soils; soils that have a cemented layer at a depth of 10 to 30 inches

### ***Use and Management***

*Major uses:* Rangeland, irrigated cropland, homesites in a few areas

*Major management factors:* Available water capacity, gravel on the surface and in the soil, hazard of water erosion in the steeper areas, risk of seepage, low precipitation

### ***Rangeland***

*Dominant vegetation in potential natural plant community:*

Shadscale, bud sagebrush, Indian ricegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation and the low available water capacity.
- The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation and the low available water capacity.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.
- Loss of the upper layer results in a severe decrease in the potential of the soil to produce forage.

### ***Cropland***

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- Production of irrigated crops is limited by the low available water capacity.
- The depth to extremely gravelly sand restricts the growth of deep-rooted plants.
- The best suited irrigation method is a sprinkler system.
- Land smoothing that involves only shallow cuts helps to avoid exposing the extremely gravelly material.

- The high content of gravel limits the amount of moisture available to plants.
- Coarse fragments on the surface make seedbed preparation difficult.
- Regulating the applications of irrigation water helps to avoid overirrigating and the leaching of plant nutrients.

#### **Building site development**

##### *General management considerations:*

- Cuts are not stable and therefore are subject to slumping.
- This map unit is a good source of roadfill.
- This map unit is limited as a site for septic tank absorption fields because of the moderately rapid permeability, which causes poor filtration of the effluent and can result in pollution of the water supply.
- Onsite investigation is needed to locate areas suitable for use as sites for septic tank absorption fields.

#### **Interpretive Groups**

*Land capability classification:* IVE, irrigated; VIIs, nonirrigated

*Range site:* Calcareous Loam, 7- to 10-inch precipitation zone

### **99—Loray-Dors complex, 8 to 20 percent slopes**

#### **Composition**

Loray soil and similar inclusions—45 percent  
Dors soil and similar inclusions—35 percent  
Contrasting inclusions—20 percent

#### **Setting**

*Position on landscape:* Dissected fan terraces

*Elevation:* About 2,700 feet

*Average annual precipitation:* About 7 inches

*Average annual air temperature:* About 52 degrees F

*Frost-free season:* About 140 days

#### **Characteristics of the Loray Soil**

*Percent of rock fragments on the surface:* 20 to 50 percent pebbles

##### *Typical profile:*

0 to 13 inches—light yellowish brown and very pale brown gravelly sandy loam

13 to 60 inches—variegated extremely gravelly sand

*Depth class:* Very deep

*Depth to extremely gravelly material:* 10 to 20 inches

*Drainage class:* Excessively drained

*Permeability:* Moderately rapid

*Available water capacity:* Low

*Potential rooting depth:* 60 inches or more

*Runoff:* Medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

#### **Characteristics of the Dors Soil**

*Percent of rock fragments on the surface:* 0 to 20 percent pebbles

##### *Typical profile:*

0 to 5 inches—light brownish gray and pale brown fine sandy loam

5 to 26 inches—pinkish gray and very pale brown fine sandy loam

26 to 60 inches—variegated very gravelly sand

*Depth class:* Very deep

*Depth to very gravelly material:* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid

*Available water capacity:* Moderate

*Potential rooting depth:* 60 inches or more

*Runoff:* Medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

#### **Contrasting Inclusions**

Ornea, Mazuma, Buko, and Vanderhoff soils

#### **Use and Management**

*Major use:* Rangeland

*Major management factors:* Available water capacity, hazard of water erosion, hazard of wind erosion, risk of seepage, low precipitation

*Dominant vegetation in potential natural plant community:*

Shadscale, bud sagebrush, Indian ricegrass,

Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation and the low available water capacity.
- The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation and the low available water capacity.
- Loss of the upper layer results in a severe decrease in the potential of the soil to produce forage.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.

#### **Interpretive Groups**

*Land capability classification:* VIIe, nonirrigated

*Range site:* Calcareous Loam, 7- to 10-inch precipitation zone

**100—Mazuma fine sandy loam, 0 to 4 percent slopes****Composition**

Mazuma soil and similar inclusions—75 percent  
Contrasting inclusions—25 percent

**Setting**

*Position on landscape:* Low stream terraces, fan terraces

*Elevation:* About 2,500 feet

*Average annual precipitation:* About 7 inches

*Average annual air temperature:* About 52 degrees F

*Frost-free season:* About 145 days

**Characteristics of the Mazuma Soil**

*Typical profile:*

0 to 4 inches—pale brown fine sandy loam

4 to 33 inches—light gray and very pale brown fine sandy loam

33 to 40 inches—very pale brown sandy loam

40 to 60 inches—very pale brown loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately rapid

*Available water capacity:* Moderate

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

*Salinity:* Slightly saline or moderately saline

**Contrasting Inclusions**

Hawsley, Garbutt, Dors, Davey, and Vanderhoff soils; soils that are moderately well drained; soils that are strongly saline

**Use and Management**

*Major uses:* Irrigated cropland, rangeland

*Major management factors:* Hazard of wind erosion, salinity, risk of seepage, low precipitation

**Rangeland**

*Dominant vegetation in potential natural plant community:*

Black greasewood, basin wildrye, inland saltgrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation and by salinity.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.

**Cropland**

*General management considerations:*

- Production of irrigated crops is limited by salinity and the hazard of wind erosion.
- Suitable irrigation methods are sprinkler, furrow, and corrugation systems.
- Leveling is needed in sloping areas for efficient application and removal of irrigation water.
- Surface drains are needed to remove tailwater if surface irrigation is used.
- Regulating the applications of irrigation water helps to avoid overirrigating and the leaching of plant nutrients.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Keeping sprinkler irrigation rates at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- Maintaining crop residue on the surface, planting field windbreaks, keeping tillage at a minimum, and keeping the surface of the soil rough reduce the hazard of wind erosion.
- Returning crop residue to the soil, carefully applying irrigation water, applying gypsum, leaching out the salts, applying sulfur or sulfuric acid, and growing green manure crops reduce the content of salts.

**Interpretive Groups**

*Land capability classification:* IIIe, irrigated; VIIe, nonirrigated

*Range site:* Saline Bottom, 8- to 12-inch precipitation zone

**101—Mazuma-Hawsley complex, 0 to 12 percent slopes****Composition**

Mazuma soil and similar inclusions—40 percent  
Hawsley soil and similar inclusions—35 percent  
Contrasting inclusions—25 percent

**Setting**

*Position on landscape:* Drainageways, fan terraces

*Elevation:* About 2,600 feet

*Average annual precipitation:* About 7 inches

*Average annual air temperature:* About 52 degrees F

*Frost-free season:* About 145 days

**Characteristics of the Mazuma Soil**

*Typical profile:*

0 to 4 inches—pale brown fine sandy loam

4 to 33 inches—light gray and very pale brown fine sandy loam

33 to 40 inches—very pale brown sandy loam

40 to 60 inches—very pale brown loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately rapid

*Available water capacity:* Moderate

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

*Salinity:* Slightly saline or moderately saline

### **Characteristics of the Hawsley Soil**

*Typical profile:*

0 to 6 inches—pale brown loamy sand

6 to 60 inches—pale brown sand

*Other characteristics:* Lake sediments or very gravelly material at a depth of more than 40 inches in some pedons

*Depth class:* Very deep

*Drainage class:* Excessively drained

*Permeability:* Very rapid

*Available water capacity:* Low

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Severe

*Salinity:* Slightly saline

### **Contrasting Inclusions**

Dors, Garbutt, Vanderhoff, and Royal soils

### **Use and Management**

*Major uses:* Rangeland, irrigated cropland

*Major management factors:* Available water capacity, hazard of water erosion, hazard of wind erosion, salinity, risk of seepage, low precipitation

### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Black greasewood, basin wildrye, inland saltgrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation, salinity, and the hazard of wind erosion.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.

### **Cropland**

*General management considerations:*

- Production of irrigated crops is limited by the available water capacity, salinity, and the hazard of wind erosion.
- The best suited irrigation method is a sprinkler system.
- Regulating the applications of irrigation water helps to control runoff and erosion and to avoid overirrigating and the leaching of plant nutrients.
- Farming across the slope, keeping tillage at a minimum, maintaining a cloddy surface, maintaining crop residue on the surface, and planting field windbreaks reduce the hazards of wind erosion and water erosion.
- Returning crop residue to the soil, applying gypsum, leaching out the salts, applying sulfur or sulfuric acid, and growing green manure crops reduce the content of salts.

### **Interpretive Groups**

*Land capability classification:* VIe, irrigated; VIIe, nonirrigated

*Range site:* Saline Bottom, 8- to 12-inch precipitation zone

## **102—McKeeth gravelly loam, 2 to 12 percent slopes**

### **Composition**

McKeeth soil and similar inclusions—80 percent

Contrasting inclusions—20 percent

### **Setting**

*Position on landscape:* Fan terraces

*Elevation:* About 3,100 feet

*Average annual precipitation:* About 7 inches

*Average annual air temperature:* About 51 degrees F

*Frost-free season:* About 130 days

### **Characteristics of the McKeeth Soil**

*Percent of rock fragments on the surface:* 15 to 30 percent pebbles

*Typical profile:*

0 to 3 inches—pale brown gravelly loam

3 to 13 inches—brown gravelly sandy clay loam

13 to 24 inches—very pale brown very gravelly sandy loam

24 to 60 inches—pale brown and very pale brown very gravelly loamy sand

*Depth class:* Very deep

*Depth to very gravelly material:* 13 to 40 inches

*Drainage class:* Somewhat excessively drained

*Permeability:* Moderately slow in the upper 15 to 30 inches; rapid below this depth

*Available water capacity:* Low

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Dors, Shoo-fly, Buko, Abgese, and Loray soils

### **Use and Management**

*Major uses:* Rangeland, irrigated cropland

*Major management factors:* Available water capacity, hazard of water erosion, depth to very gravelly material, risk of seepage, low precipitation

### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Shadscale, bud sagebrush, Indian ricegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation and the available water capacity.
- The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation and the available water capacity.
- Loss of the upper layer results in a severe decrease in the potential of the soil to produce forage.
- Installation of pipelines is limited by the depth to very gravelly material.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.

### **Cropland**

*General management considerations:*

- Production of irrigated crops is limited by the low available water capacity and the depth to very gravelly material.
- The best suited irrigation method is a sprinkler system.
- Land smoothing that involves only shallow cuts helps to avoid exposing the very gravelly material.
- The high content of gravel in the soil limits the amount of moisture available to plants.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.

- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.

- Farming across the slope, keeping tillage at a minimum, maintaining a cloddy surface, maintaining crop residue on or near the surface, and maintaining tilth and the content of organic matter reduce the risk of water erosion.

### **Interpretive Groups**

*Land capability classification:* IVE, irrigated; VIIe, nonirrigated

*Range site:* Calcareous Loam, 7- to 10-inch precipitation zone

## **103—Minidoka-Minveno silt loams, 0 to 4 percent slopes**

### **Composition**

Minidoka soil and similar inclusions—60 percent

Minveno soil and similar inclusions—20 percent

Contrasting inclusions—20 percent

### **Setting**

*Position on landscape:* Basalt plains

*Elevation:* About 3,200 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 130 days

### **Characteristics of the Minidoka Soil**

*Typical profile:*

0 to 17 inches—brown silt loam

17 to 27 inches—white silt loam

27 to 43 inches—white, strongly cemented hardpan

43 to 60 inches—alternate layers of white silt loam and weakly cemented material (hardpan)

*Depth class:* Moderately deep

*Depth to hardpan (not rippable):* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Moderate

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

### **Characteristics of the Minveno Soil**

*Typical profile:*

0 to 8 inches—light brownish gray and brown silt loam

8 to 14 inches—white loam

14 to 21 inches—white, very strongly cemented  
hardpan

21 inches—unweathered bedrock

*Depth class:* Shallow

*Depth to hardpan (not rippable):* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Low

*Potential rooting depth:* 10 to 20 inches

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

### ***Contrasting Inclusions***

Garbutt, Scism, Trevino, and Shano soils; soils that have slopes of more than 4 percent; soils that have bedrock at a depth of more than 40 inches

### ***Use and Management***

*Major uses:* Rangeland, irrigated cropland, homesites in a few areas

*Major management factors:* Available water capacity, depth to bedrock, depth to the hardpan, hazard of wind erosion, frost heaving, rooting depth, low precipitation

### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation.
- Plants that can tolerate droughtiness are suitable for seeding.
- Installation of pipelines is limited by depth to the hardpan and to bedrock.

### **Cropland**

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- Suitable irrigation methods are sprinkler, furrow, and corrugation systems.
- Leveling is needed in sloping areas for efficient application and removal of irrigation water.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a

minimum increase the water intake rate and improve tilth.

- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- Maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the surface of the soil rough reduce the hazard of wind erosion.

### **Building site development**

*General management considerations:*

- Excavation is hampered by the hardpan. Heavy equipment is needed.
- Limited soil strength adversely affects the quality of roadbeds and road surfaces.
- Septic tank absorption fields can be expected to function poorly because of the limited depth to the hardpan.
- Onsite investigation is needed to locate areas suitable for use as sites for septic tank absorption fields.

### ***Interpretive Groups***

*Land capability classification:* IIIe, irrigated; VIs, nonirrigated

*Range site:* Loamy, 8- to 10-inch precipitation zone

## **104—Minidoka-Minveno silt loams, 4 to 8 percent slopes**

### ***Composition***

Minidoka soil and similar inclusions—60 percent

Minveno soil and similar inclusions—25 percent

Contrasting inclusions—15 percent

### ***Setting***

*Position on landscape:* Basalt plains

*Elevation:* About 3,200 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 130 days

### ***Characteristics of the Minidoka Soil***

*Typical profile:*

0 to 17 inches—brown silt loam

17 to 27 inches—white silt loam

27 to 43 inches—white, strongly cemented hardpan

43 to 60 inches—alternate layers of white silt loam and strongly cemented material (hardpan)

*Depth class:* Moderately deep

*Depth to hardpan (not rippable):* 20 to 40 inches

*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* Moderate  
*Potential rooting depth:* 20 to 40 inches  
*Runoff:* Slow or medium  
*Hazard of water erosion:* Moderate  
*Hazard of wind erosion:* Moderate

### **Characteristics of the Minveno Soil**

#### *Typical profile:*

- 0 to 8 inches—light brownish gray and brown silt loam
- 8 to 14 inches—white loam
- 14 to 21 inches—white, very strongly cemented hardpan
- 21 inches—unweathered bedrock

*Depth class:* Shallow  
*Depth to hardpan (not rippable):* 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* Low  
*Potential rooting depth:* 10 to 20 inches  
*Runoff:* Slow or medium  
*Hazard of water erosion:* Moderate  
*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Garbutt, Scism, Trevino, and Shano soils; soils that have slopes of less than 4 percent or more than 8 percent

### **Use and Management**

*Major uses:* Rangeland, irrigated cropland  
*Major management factors:* Available water capacity, depth to bedrock, depth to the hardpan, hazard of water erosion, hazard of wind erosion, rooting depth, low precipitation

#### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation.
- Plants that can tolerate droughtiness are suitable for seeding.
- Installation of pipelines is limited by depth to the hardpan and to bedrock in some areas.

#### **Cropland**

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- The best suited irrigation method is a sprinkler system.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- Farming across the slope, keeping tillage at a minimum, maintaining a cloddy surface, and maintaining crop residue on or near the surface reduce the hazards of wind erosion and water erosion.

### **Interpretive Groups**

*Land capability classification:* IIIe, irrigated; VIe, nonirrigated

*Range site:* Loamy, 8- to 10-inch precipitation zone

## **105—Minveno silt loam, 0 to 4 percent slopes**

### **Composition**

Minveno soil and similar inclusions—80 percent

Contrasting inclusions—20 percent

### **Setting**

*Position on landscape:* Basalt plains

*Elevation:* About 3,200 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 130 days

### **Characteristics of the Minveno Soil**

#### *Typical profile:*

- 0 to 8 inches—light brownish gray and brown silt loam
- 8 to 14 inches—white loam
- 14 to 21 inches—white, very strongly cemented hardpan
- 21 inches—unweathered bedrock

*Depth class:* Shallow

*Depth to hardpan (not rippable):* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Low

*Potential rooting depth:* 10 to 20 inches

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

### ***Contrasting Inclusions***

Minidoka, Bahem, Trevino, and Shano soils; soils that have slopes of more than 4 percent; soils that have bedrock at a depth of more than 40 inches

### ***Use and Management***

*Major uses:* Rangeland, irrigated cropland, homesites in a few areas

*Major management factors:* Available water capacity, depth to bedrock, depth to the hardpan, hazard of wind erosion, rooting depth, low precipitation

### ***Rangeland***

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation.
- Plants that can tolerate droughtiness are suitable for seeding.
- Installation of pipelines is limited by depth to the hardpan and to bedrock.

### ***Cropland***

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- Forage production is limited by the shallow rooting depth.
- Suitable irrigation methods are sprinkler, furrow, and corrugation systems.
- Leveling is needed in sloping areas for efficient application and removal of irrigation water.
- Land smoothing that involves only shallow cuts helps to avoid exposing the hardpan.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.

- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- Maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the surface of the soil rough reduce the hazard of wind erosion.

### ***Building site development***

*General management considerations:*

- Excavation is hampered by the hardpan. Heavy equipment is needed.
- Limited soil strength adversely affects the quality of roadbeds and road surfaces.
- Septic tank absorption fields can be expected to function poorly because of the limited depth to the hardpan and to bedrock.

### ***Interpretive Groups***

*Land capability classification:* IVs, irrigated; VIs, nonirrigated

*Range site:* Loamy, 8- to 10-inch precipitation zone

## **106—Minveno silt loam, 4 to 8 percent slopes**

### ***Composition***

Minveno soil and similar inclusions—85 percent  
Contrasting inclusions—15 percent

### ***Setting***

*Position on landscape:* Basalt plains

*Elevation:* About 3,300 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 130 days

### ***Characteristics of the Minveno Soil***

*Typical profile:*

- 0 to 8 inches—light brownish gray and brown silt loam
- 8 to 14 inches—white loam
- 14 to 21 inches—white, very strongly cemented hardpan
- 21 inches—unweathered bedrock

*Depth class:* Shallow

*Depth to hardpan (not rippable):* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Low

*Potential rooting depth:* 10 to 20 inches



*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Minidoka, Bahem, Trevino, and Shano soils; soils that have slopes of less than 4 percent or more than 8 percent; soils that have bedrock at a depth of more than 40 inches

### **Use and Management**

*Major uses:* Rangeland, irrigated cropland

*Major management factors:* Available water capacity, depth to bedrock, depth to the hardpan, hazard of wind erosion, hazard of water erosion, rooting depth, low precipitation

### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation.
- Plants that can tolerate droughtiness are suitable for seeding.
- Installation of pipelines is limited by depth to the hardpan and to bedrock.

### **Cropland**

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- Crop production is limited by the shallow rooting depth.
- The best suited irrigation method is a sprinkler system.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- Farming across the slope, keeping tillage at a minimum, maintaining a cloddy surface, and maintaining crop residue on or near the surface reduce the hazards of wind erosion and water erosion.

### **Interpretive Groups**

*Land capability classification:* IVe, irrigated; Vle, nonirrigated

*Range site:* Loamy, 8- to 10-inch precipitation zone

## **107—Minveno-Minidoka stony silt loams, 0 to 8 percent slopes**

### **Composition**

Minveno soil and similar inclusions—50 percent

Minidoka soil and similar inclusions—25 percent

Contrasting inclusions—25 percent

### **Setting**

*Position on landscape:* Basalt plains

*Elevation:* About 3,300 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 130 days

### **Characteristics of the Minveno Soil**

*Typical profile:*

- 0 to 8 inches—light brownish gray and brown stony silt loam
- 8 to 14 inches—white loam
- 14 to 21 inches—white, very strongly cemented hardpan
- 21 inches—unweathered bedrock

*Depth class:* Shallow

*Depth to hardpan (not rippable):* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Low

*Potential rooting depth:* 10 to 20 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Characteristics of the Minidoka Soil**

*Typical profile:*

- 0 to 4 inches—brown stony silt loam
- 4 to 17 inches—brown silt loam
- 17 to 27 inches—white silt loam
- 27 to 43 inches—white, strongly cemented hardpan
- 43 to 60 inches—alternate layers of silt loam and strongly cemented material (hardpan)

*Depth class:* Moderately deep

*Depth to hardpan (not rippable):* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Moderate  
*Potential rooting depth:* 20 to 40 inches  
*Runoff:* Slow or medium  
*Hazard of water erosion:* Moderate  
*Hazard of wind erosion:* Moderate

### ***Contrasting Inclusions***

Bahem, Scism, Trevino, and Shano soils; soils that have slopes of more than 8 percent

### ***Use and Management***

*Major uses:* Rangeland, irrigated cropland, homesites in a few areas

*Major management factors:* Available water capacity, stones on the surface and in the soil, depth to bedrock, depth to the hardpan, hazard of water erosion, hazard of wind erosion, rooting depth, low precipitation

### ***Rangeland***

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation and the content of stones.
- Plants that can tolerate droughtiness are suitable for seeding.
- Installation of pipelines is limited by depth to the hardpan and to bedrock.

### ***Cropland***

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- Crop production is limited by the restricted rooting depth.
- The best suited irrigation method is a sprinkler system.
- Stones on the surface limit the use of machinery.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.

- Farming across the slope, keeping tillage at a minimum, maintaining a cloddy surface, and maintaining crop residue on or near the surface reduce the hazards of wind erosion and water erosion.

### ***Building site development***

*General management considerations:*

- Excavation is hampered by the hardpan. Heavy equipment is needed.
- Limited soil strength adversely affects the quality of roadbeds and road surfaces.
- Onsite investigation is needed to locate areas suitable for use as sites for septic tank absorption fields.

### ***Interpretive Groups***

*Land capability classification:* IVe, irrigated; VIe, nonirrigated

*Range site:* Loamy, 8- to 10-inch precipitation zone

## **108—Monroe-Jenness complex, 0 to 2 percent slopes**

### ***Composition***

Monroe soil and similar inclusions—45 percent  
 Jenness soil and similar inclusions—35 percent  
 Contrasting inclusions—20 percent

### ***Setting***

*Position on landscape:* Flood plains, fan terraces, drainageways

*Elevation:* About 3,900 feet

*Average annual precipitation:* About 12 inches

*Average annual air temperature:* About 49 degrees F

*Frost-free season:* About 120 days

### ***Characteristics of the Monroe Soil***

*Typical profile:*

- 0 to 8 inches—dark grayish brown sandy loam
- 8 to 14 inches—dark gray loam
- 14 to 23 inches—dark grayish brown loam
- 23 to 36 inches—gray loam
- 36 to 60 inches—gray sandy loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

**Characteristics of the Jenness Soil***Typical profile:*

- 0 to 6 inches—grayish brown loam
- 6 to 12 inches—light brownish gray loam
- 12 to 36 inches—light brownish gray sandy loam
- 36 to 60 inches—light brownish gray gravelly loamy sand

*Depth class:* Very deep*Drainage class:* Well drained*Permeability:* Moderate*Available water capacity:* Moderate*Potential rooting depth:* 60 inches or more*Runoff:* Slow*Hazard of water erosion:* Slight*Hazard of wind erosion:* Moderate**Contrasting Inclusions**

Brownlee, Goose Creek, and Haw soils; soils that have slopes of more than 2 percent; soils that are similar to the Monroe soil but have a thinner upper layer

**Use and Management***Major uses:* Rangeland, homesites in a few areas*Major management factors:* Hazard of wind erosion, risk of seepage, low precipitation**Rangeland***Dominant vegetation in potential natural plant community:*

Basin big sagebrush, basin wildrye

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation and the hazard of wind erosion.
- Plants that can tolerate droughtiness are suitable for seeding.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.

**Building site development***General management considerations:*

- This map unit is limited as a site for septic tank absorption fields by the poor filtration of the effluent, which can result in pollution of the water supply.
- Onsite investigation is needed to locate areas suitable for use as sites for septic tank absorption fields.

**Interpretive Groups***Land capability classification:* Vlc, nonirrigated*Range site:* Loamy Bottom, 8- to 14-inch precipitation zone**109—Monroe-Goose Creek association, 0 to 2 percent slopes****Composition**

Monroe soil and similar inclusions—40 percent

Goose Creek soil and similar inclusions—40 percent

Contrasting inclusions—20 percent

**Setting***Position on landscape:* Fan terraces, flood plains*Elevation:* About 3,400 feet*Average annual precipitation:* About 11 inches*Average annual air temperature:* About 50 degrees F*Frost-free season:* About 120 days**Characteristics of the Monroe Soil***Typical profile:*

- 0 to 8 inches—dark grayish brown sandy loam
- 8 to 14 inches—dark gray loam
- 14 to 23 inches—dark grayish brown loam
- 23 to 36 inches—gray loam
- 36 to 60 inches—gray sandy loam

*Depth class:* Very deep*Drainage class:* Well drained*Permeability:* Moderate*Available water capacity:* High*Potential rooting depth:* 60 inches or more*Runoff:* Slow*Hazard of water erosion:* Slight*Hazard of wind erosion:* Moderate**Characteristics of the Goose Creek Soil***Typical profile:*

- 0 to 6 inches—brown silt loam
- 6 to 17 inches—dark gray silty clay loam
- 17 to 60 inches—gray, light gray, and very pale brown silt loam

*Depth class:* Very deep*Drainage class:* Somewhat poorly drained*Permeability:* Slow*Available water capacity:* High*Restriction affecting rooting depth:* Water table at a depth of 30 to 42 inches from May through September*Runoff:* Slow*Hazard of water erosion:* Slight*Hazard of wind erosion:* Moderate*Depth to water table:* 30 to 42 inches from May through September; more than 60 inches the rest of the year*Frequency of flooding:* Rare

### ***Contrasting Inclusions***

Jenness soils; soils that have slopes of more than 2 percent; soils that are similar to the Monroe and Goose Creek soils but have a thin upper layer; soils that are poorly drained; soils that are more than 35 percent rock fragments at a depth of 20 to 40 inches

### ***Use and Management***

*Major uses:* Irrigated cropland, hayland, pasture

*Minor use:* Livestock grazing in a few small areas (less than 10 percent of the map unit) that support native vegetation

*Major management factors:* Flooding in some areas, hazard of wind erosion, risk of seepage, wetness

### **Cropland, hayland, and pasture**

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- Suitable irrigation methods are sprinkler, furrow, and corrugation systems.
- Leveling is needed in sloping areas for efficient application and removal of irrigation water.
- Wetness limits the choice of plants and the period of cutting or grazing.
- The seasonal high water table provides supplemental moisture for plants.
- Hay and pasture plants that can tolerate periodic inundation and seasonal wetness are suitable for seeding.

### ***Interpretive Groups***

*Land capability classification:* Monroe soil—Ilc, irrigated; Goose Creek soil—Ilw, irrigated

## **110—Moran-Teewinot-Coski complex, 10 to 50 percent slopes**

### ***Composition***

Moran soil and similar inclusions—40 percent  
Teewinot soil and similar inclusions—20 percent  
Coski soil and similar inclusions—15 percent  
Contrasting inclusions—25 percent

### ***Setting***

*Position on landscape:* Mountains

*Elevation:* About 7,300 feet

*Average annual precipitation:* About 32 inches

*Average annual air temperature:* About 36 degrees F

*Frost-free season:* About 45 days

### ***Characteristics of the Moran Soil***

*Position on landscape:* Side slopes

*Slope:* 20 to 50 percent

*Percent of rock fragments on the surface:* 15 to 30 percent pebbles

*Typical profile:*

0 to 7 inches—dark grayish brown gravelly sandy loam

7 to 20 inches—brown gravelly sandy loam

20 to 41 inches—brown very stony sandy loam

41 inches—unweathered bedrock

*Depth class:* Deep

*Drainage class:* Well drained

*Permeability:* Moderately rapid

*Available water capacity:* Low

*Potential rooting depth:* 40 to 60 inches

*Runoff:* Medium or rapid

*Hazard of water erosion:* Moderate

### ***Characteristics of the Teewinot Soil***

*Position on landscape:* Ridges, shoulder slopes

*Slope:* 10 to 30 percent

*Percent of rock fragments on the surface:* 35 percent cobbles and pebbles

*Typical profile:*

0 to 7 inches—dark grayish brown very cobbly sandy loam

7 to 14 inches—brown very cobbly sandy loam

14 inches—unweathered bedrock

*Depth class:* Shallow

*Drainage class:* Well drained

*Permeability:* Moderately rapid

*Available water capacity:* Low

*Potential rooting depth:* 10 to 20 inches

*Runoff:* Medium

*Hazard of water erosion:* Moderate

### ***Characteristics of the Coski Soil***

*Position on landscape:* Concave areas

*Slope:* 15 to 30 percent

*Thickness of organic mat on the surface:* 1 inch

*Typical profile:*

0 to 11 inches—grayish brown gravelly coarse sandy loam

11 to 42 inches—pale brown and very pale brown gravelly coarse sandy loam

42 inches—unweathered bedrock

*Depth class:* Deep

*Drainage class:* Well drained

*Permeability:* Moderately rapid

*Available water capacity:* Low

*Potential rooting depth:* 40 to 60 inches

*Runoff:* Medium

*Hazard of water erosion:* Moderate

### **Contrasting Inclusions**

Soils that are 20 to 40 inches deep; soils that are less than 35 percent rock fragments throughout; soils that have slopes of more than 50 percent; Rock outcrop

### **Use and Management**

*Major use:* Rangeland

*Minor use:* Woodland (in areas of the Coski soil)

*Major management factors:* Available water capacity, hazard of water erosion, slope

### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Moran and Teewinot soils—subalpine big sagebrush, Idaho fescue

*General management considerations:*

- Forage production is limited mainly by the short growing season and the low available water capacity.
- Because cold soil temperatures limit plant growth, grazing should be delayed until the soil has warmed and the forage plants have achieved sufficient growth.
- The suitability of this map unit for range seeding is fair. Seeding is limited by the slope and by the rock fragments on the surface.
- The use of equipment is limited by the slope and by the rock fragments on the surface.
- Construction of fences on the Teewinot soil is limited by the depth to bedrock.

### **Woodland**

*Dominant vegetation in potential natural plant community:*

Coski soil—subalpine fir, heartleaf arnica

*General management considerations:*

- Areas of woodland occur as small pockets near the timberline; they are not manageable for timber production.

### **Interpretive Groups**

*Land capability classification:* VIIe, nonirrigated

*Range site:* Moran and Teewinot soils—Subalpine Slope Loamy, 20+-inch precipitation zone

## **111—Oland gravelly loam, 2 to 20 percent slopes**

### **Composition**

Oland soil and similar inclusions—75 percent

Contrasting inclusions—25 percent

### **Setting**

*Position on landscape:* Foothills, fan terraces

*Elevation:* About 4,500 feet

*Average annual precipitation:* About 18 inches

*Average annual air temperature:* About 47 degrees F

*Frost-free season:* About 90 days

### **Characteristics of the Oland Soil**

*Typical profile:*

0 to 17 inches—dark grayish brown gravelly loam

17 to 23 inches—dark brown very cobbly loam

23 to 60 inches—light yellowish brown very cobbly sandy loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Moderate

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Van Dusen and Brownlee soils; sandy soils that are more than 35 percent rock fragments throughout; soils that have bedrock at a depth of 20 to 40 inches; soils that are on stream terraces near Featherville and have a light-colored upper layer

### **Use and Management**

*Major uses:* Rangeland, homesites in a few areas

*Major management factors:* Hazard of water erosion, frost heaving, risk of seepage

### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Mountain big sagebrush, bluebunch wheatgrass

*General management considerations:*

- The suitability of this map unit for range seeding is fair. Seeding is limited by the hazard of water erosion in the steeper areas.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.

### **Building site development**

*General management considerations:*

- Excavation is hampered by the cobbles in the soil.
- The potential for frost action adversely affects the quality of roadbeds and road surfaces.
- This map unit is limited as a site for septic tank absorption fields because of poor filtration of the effluent, which can result in pollution of the water supply.

- Onsite investigation is needed to locate areas suitable for use as sites for septic tank absorption fields.

### ***Interpretive Groups***

*Land capability classification:* IVe, nonirrigated

*Range site:* Loamy, 12- to 16-inch precipitation zone

## **112—Ornea gravelly loam, 2 to 8 percent slopes**

### ***Composition***

Ornea soil and similar inclusions—80 percent

Contrasting inclusions—20 percent

### ***Setting***

*Position on landscape:* Fan terraces

*Elevation:* About 3,000 feet

*Average annual precipitation:* About 7 inches

*Average annual air temperature:* About 51 degrees F

*Frost-free season:* About 135 days

### ***Characteristics of the Ornea Soil***

*Percent of rock fragments on the surface:* 15 to 30 percent pebbles

*Typical profile:*

- 0 to 9 inches—very pale brown gravelly loam
- 9 to 12 inches—very pale brown gravelly clay loam
- 12 to 26 inches—very pale brown very gravelly coarse sand
- 26 to 60 inches—variegated extremely gravelly coarse sand

*Depth class:* Very deep

*Depth to very gravelly material:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow in the upper 10 to 20 inches; very rapid below this depth

*Available water capacity:* Low

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

### ***Contrasting Inclusions***

Royal, Lora, and Perazzo soils; Mazuma soils in drainageways; soils that have slopes of less than 2 percent

### ***Use and Management***

*Major uses:* Rangeland, irrigated cropland

*Major management factors:* Available water capacity, hazard of water erosion, depth to very gravelly material, risk of seepage, low precipitation

## **Rangeland**

*Dominant vegetation in potential natural plant community:*

Shadscale, bud sagebrush, Indian ricegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation and the low available water capacity.
- The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation and the low available water capacity.
- Loss of the upper layer results in a severe decrease in the potential of the soil to produce forage.
- Installation of pipelines is limited by the depth to very gravelly material.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.

## **Cropland**

*General management considerations:*

- Crop production is limited by the low available water capacity and the depth to very gravelly material.
- The best suited irrigation method is a sprinkler system.
- The content of gravel at a depth of 10 to 20 inches restricts the growth of deep-rooted plants.
- Land smoothing that involves only shallow cuts helps to avoid exposing the very gravelly material.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- Keeping tillage at a minimum and maintaining a cloddy surface reduce the risk of water erosion.

### ***Interpretive Groups***

*Land capability classification:* IIIe, irrigated; VIIe, nonirrigated

*Range site:* Calcareous Loam, 7- to 10-inch precipitation zone

## **113—Owsel-Purdum complex, 1 to 12 percent slopes**

### ***Composition***

Owsel soil and similar inclusions—45 percent

Purdum soil and similar inclusions—35 percent

Contrasting inclusions—20 percent

### **Setting**

*Position on landscape:* Alluvial plains, basalt plains

*Elevation:* About 3,500 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 125 days

### **Characteristics of the Owsel Soil**

*Typical profile:*

0 to 4 inches—brown loam

4 to 18 inches—brown silt loam and silty clay loam

18 to 36 inches—pale brown and light yellowish brown loam

36 to 60 inches—pale brown fine sandy loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Characteristics of the Purdam Soil**

*Typical profile:*

0 to 6 inches—brown and pale brown silt loam

6 to 15 inches—pale brown silty clay loam

15 to 21 inches—pale brown silt loam

21 to 40 inches—very pale brown, weakly cemented hardpan

40 to 60 inches—variegated sand

*Depth class:* Moderately deep

*Depth to hardpan (rippable):* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Moderate

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Buko, Chilcott, Colthorp, Sebree, and Royal soils; soils that have slopes of more than 12 percent

### **Use and Management**

*Major uses:* Rangeland, irrigated cropland

*Major management factors:* Depth to the hardpan, hazard of water erosion, hazard of wind erosion, slope, low precipitation

### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation.
- Plants that can tolerate droughtiness are suitable for seeding.
- Installation of pipelines is limited by depth to the hardpan in some areas.

### **Cropland**

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- The best suited irrigation method is a sprinkler system.
- The risk of erosion is increased if row crops are grown.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Ripping or shattering the pan increases the effective rooting depth and available water capacity and improves internal drainage.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- Farming across the slope, keeping tillage at a minimum, maintaining a cloddy surface, and maintaining crop residue on or near the surface reduce the hazards of wind erosion and water erosion.

### **Interpretive Groups**

*Land capability classification:* IVE, irrigated; VIe, nonirrigated

*Range site:* Loamy, 8- to 10-inch precipitation zone

## **114—Perazzo-Ornea-Abgese complex, 12 to 40 percent slopes**

### **Composition**

Perazzo soil and similar inclusions—35 percent

Ornea soil and similar inclusions—30 percent

Abgese soil and similar inclusions—20 percent

Contrasting inclusions—15 percent

### **Setting**

*Position on landscape:* Dissected fan terraces

*Elevation:* About 3,500 feet

*Average annual precipitation:* About 8 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 130 days

### **Characteristics of the Perazzo Soil**

*Position on landscape:* Shoulder slopes, side slopes

*Slope:* 20 to 40 percent

*Percent of rock fragments on the surface:* 15 to 30 percent cobbles and pebbles

*Typical profile:*

0 to 2 inches—light gray very gravelly sandy loam

2 to 4 inches—light gray very gravelly silt loam

4 to 8 inches—light yellowish brown very gravelly clay loam

8 to 12 inches—very pale brown very gravelly loam

12 to 18 inches—very pale brown extremely gravelly sandy loam

18 to 60 inches—very pale brown extremely gravelly loamy sand

*Depth class:* Very deep

*Depth to extremely gravelly material:* 10 to 20 inches

*Drainage class:* Somewhat excessively drained

*Permeability:* Moderately slow in the upper 12 inches; rapid below this depth

*Available water capacity:* Low

*Potential rooting depth:* 60 inches or more

*Runoff:* Medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Characteristics of the Ornea Soil**

*Position on landscape:* Side slopes

*Slope:* 12 to 30 percent

*Percent of rock fragments on the surface:* 5 to 20 percent pebbles

*Typical profile:*

0 to 9 inches—very pale brown gravelly loam

9 to 12 inches—very pale brown gravelly clay loam

12 to 26 inches—very pale brown very gravelly coarse sand

26 to 60 inches—variegated extremely gravelly coarse sand

*Depth class:* Very deep

*Depth to very gravelly material:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow in the upper 10 to 20 inches; very rapid below this depth

*Available water capacity:* Low

*Potential rooting depth:* 60 inches or more

*Runoff:* Medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Characteristics of the Abgese Soil**

*Position on landscape:* Foot slopes, toe slopes

*Slope:* 12 to 20 percent

*Percent of rock fragments on the surface:* 5 to 15 percent pebbles

*Typical profile:*

0 to 6 inches—brown sandy loam

6 to 15 inches—pale brown sandy clay loam

15 to 60 inches—light yellowish brown and very pale brown gravelly sandy loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Moderate

*Potential rooting depth:* 60 inches or more

*Runoff:* Medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Loray, Hawsley, McKeeth, Shoofly, and Mazuma soils; soils that have slopes of less than 12 percent or more than 40 percent

### **Use and Management**

*Major use:* Rangeland

*Major management factors:* Available water capacity, depth to extremely gravelly or very gravelly material, hazard of water erosion, hazard of wind erosion, slope, low precipitation

*Dominant vegetation in potential natural plant community:*

Perazzo and Ornea soils—shadscale, bud

sagebrush, Indian ricegrass, Thurber needlegrass;

Abgese soil—Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation and the low available water capacity in some areas.
- The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation.
- The use of equipment is limited by the slope.

### **Interpretive Groups**

*Land capability classification:* VIIe, nonirrigated

*Range site:* Perazzo and Ornea soils—Calcareous Loam, 7- to 10-inch precipitation zone; Abgese



soil—Sandy Loam, 8- to 12-inch precipitation zone

### 115—Pits, gravel

*Position on landscape:* Areas at elevations of less than 4,000 feet throughout the survey area

*Description of areas:* Open excavations where soil material and underlying sand, gravel, and cobbles, which were deposited by various floods, have been removed

*Land capability classification:* VIII

### 116—Power silt loam, 1 to 4 percent slopes

#### **Composition**

Power soil and similar inclusions—75 percent

Contrasting inclusions—25 percent

#### **Setting**

*Position on landscape:* Alluvial plains, basalt plains, alluvial terraces

*Elevation:* About 3,200 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 130 days

#### **Characteristics of the Power Soil**

*Typical profile:*

0 to 6 inches—light brownish gray and light gray silt loam

6 to 19 inches—brown and pale brown clay loam

19 to 60 inches—light gray and white loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

#### **Contrasting Inclusions**

Chilcott, Elijah, Chardoton, and Purdam soils; soils that have slopes of more than 4 percent

#### **Use and Management**

*Major uses:* Irrigated cropland, homesites in a few areas

*Minor use:* Livestock grazing in a few small areas (less than 5 percent of the map unit) that support native vegetation

*Major management factor:* Permeability

### **Cropland**

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- Suitable irrigation methods are sprinkler, furrow, and corrugation systems.
- Leveling is needed in sloping areas for efficient application and removal of irrigation water.
- Surface drains are needed to remove tailwater if surface irrigation is used.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Because permeability is moderately slow, adjusting the length of runs helps to ensure adequate infiltration of water.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.

#### **Interpretive Groups**

*Land capability classification:* IIe, irrigated

### 117—Power-Chardoton complex, 0 to 4 percent slopes

#### **Composition**

Power soil and similar inclusions—45 percent

Chardoton soil and similar inclusions—35 percent

Contrasting inclusions—20 percent

#### **Setting**

*Position on landscape:* Alluvial plains, basalt plains

*Elevation:* About 3,200 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 130 days

#### **Characteristics of the Power Soil**

*Typical profile:*

0 to 6 inches—light brownish gray and light gray silt loam

6 to 19 inches—brown and pale brown clay loam

19 to 60 inches—light gray and white loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* High  
*Potential rooting depth:* 60 inches or more  
*Runoff:* Slow  
*Hazard of water erosion:* Slight  
*Hazard of wind erosion:* Moderate

### **Characteristics of the Chardoton Soil**

#### *Typical profile:*

0 to 4 inches—pale brown fine sandy loam  
 4 to 8 inches—light gray loam  
 8 to 35 inches—pale brown and light yellowish brown silty clay  
 35 to 41 inches—very pale brown silty clay loam  
 41 to 55 inches—white loam  
 55 to 60 inches—pinkish white, moderately cemented hardpan

*Depth class:* Deep

*Depth to hardpan (rippable):* 40 to 60 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* High

*Potential rooting depth:* 40 to 60 inches

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Purdum and Chilcott soils; Rock outcrop; soils that have slopes of more than 4 percent; soils that are shallow to a hardpan or to bedrock; soils that are similar to the Power soil but have bedrock at a depth of 20 to 60 inches

### **Use and Management**

*Major uses:* Rangeland, irrigated cropland, homesites in a few areas

*Major management factors:* Hazard of wind erosion, permeability, potential for shrinking and swelling, low precipitation

#### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation.
- Plants that can tolerate shrinking and swelling of the soil and droughtiness are suitable for seeding.
- A risk of seepage limits the construction of livestock

watering ponds and other water impoundments.

#### **Cropland**

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- Suitable irrigation methods are sprinkler, furrow, and corrugation systems.
- Leveling is needed in sloping areas for efficient application and removal of irrigation water.
- Surface drains are needed to remove tailwater if surface irrigation is used.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Because permeability is moderately slow or slow, adjusting the length of runs helps to ensure adequate infiltration of water.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- Maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the surface of the soil rough reduce the hazard of wind erosion.

#### **Building site development**

*General management considerations:*

- Shrinking and swelling adversely affect the quality of roadbeds and road surfaces.
- Septic tank absorption fields can be expected to function poorly because of limited permeability, which restricts the movement and filtration of the effluent.
- Onsite investigation is needed to locate areas suitable for use as sites for septic tank absorption fields.

### **Interpretive Groups**

*Land capability classification:* IIe, irrigated; VIc, nonirrigated

*Range site:* Loamy, 8- to 10-inch precipitation zone

## **118—Power-Jenness complex, 0 to 2 percent slopes**

### **Composition**

Power soil and similar inclusions—45 percent  
 Jenness soil and similar inclusions—30 percent

Contrasting inclusions—25 percent

### **Setting**

*Position on landscape:* Alluvial terraces, fan terraces

*Elevation:* About 3,000 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 51 degrees F

*Frost-free season:* About 135 days

### **Characteristics of the Power Soil**

*Typical profile:*

0 to 6 inches—light brownish gray and light gray silt loam

6 to 19 inches—brown and pale brown clay loam

19 to 60 inches—light gray and white loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

### **Characteristics of the Jenness Soil**

*Typical profile:*

0 to 12 inches—grayish brown and light brownish gray loam

12 to 36 inches—light brownish gray sandy loam

36 to 60 inches—light brownish gray gravelly loamy sand

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Moderate

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Elijah, Royal, and Davey soils; soils that have slopes of more than 2 percent

### **Use and Management**

*Major uses:* Irrigated cropland, rangeland

*Major management factors:* Hazard of wind erosion, permeability, low precipitation

### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Power soil—Wyoming big sagebrush, Thurber needlegrass; Jenness soil—basin big sagebrush, basin wildrye

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by the hazard of wind erosion and by low precipitation.
- Plants that can tolerate droughtiness are suitable for seeding.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.

### **Cropland**

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- Suitable irrigation methods are sprinkler, furrow, and corrugation systems.
- Leveling is needed for uniform application of water.
- Surface drains are needed to remove tailwater if surface irrigation is used.
- Because permeability is moderately slow in the Power soil, adjusting the length of runs helps to ensure adequate infiltration of water.
- Regulating the applications of irrigation water helps to avoid overirrigating and the leaching of plant nutrients.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- Maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the surface of the soil rough reduce the hazard of wind erosion.

### **Interpretive Groups**

*Land capability classification:* IIc, irrigated; VIc, nonirrigated

*Range site:* Power soil—Loamy, 8- to 10-inch precipitation zone; Jenness soil—Loamy Bottom, 8- to 14-inch precipitation zone

## **119—Power-Purdam silt loams, 0 to 1 percent slopes**

### **Composition**

Power soil and similar inclusions—50 percent  
Purdam soil and similar inclusions—40 percent  
Contrasting inclusions—10 percent

### **Setting**

*Position on landscape:* Basalt plains, alluvial terraces

*Elevation:* About 3,100 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 130 days

### **Characteristics of the Power Soil**

*Typical profile:*

0 to 6 inches—light brownish gray and light gray silt loam

6 to 19 inches—brown and pale brown clay loam

19 to 60 inches—light gray and white loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

### **Characteristics of the Purdam Soil**

*Typical profile:*

0 to 6 inches—brown and pale brown silt loam

6 to 15 inches—pale brown silty clay loam

15 to 21 inches—pale brown silt loam

21 to 40 inches—very pale brown, weakly cemented hardpan

40 to 60 inches—variegated sand

*Depth class:* Moderately deep

*Depth to hardpan (rippable):* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Moderate

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Chardoton, Chilcott, Elijah, and Colthorp soils; soils that have slopes of more than 1 percent; soils that have a dark upper layer

### **Use and Management**

*Major uses:* Irrigated cropland, homesites in a few areas

*Minor use:* Livestock grazing in a few small areas (less than 10 percent of the map unit) that support native vegetation

*Major management factors:* Depth to the hardpan, permeability, rooting depth

### **Cropland**

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- Suitable irrigation methods are sprinkler, furrow, and corrugation systems.
- Leveling is needed for uniform application of water.
- Surface drains are needed to remove tailwater if surface irrigation is used.
- Because permeability is moderately slow, adjusting the length of runs helps to ensure adequate infiltration of water.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Ripping or shattering the pan increases the effective root zone and available water capacity and improves internal drainage.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.

### **Building site development**

*General management considerations:*

- Excavation is hampered by the hardpan.
- The hardpan is rippable and therefore does not seriously limit most construction.
- Onsite investigation is needed to locate areas suitable for use as sites for septic tank absorption fields.

### **Interpretive Groups**

*Land capability classification:* IIc, irrigated

## **120—Purdam silt loam, 0 to 4 percent slopes**

### **Composition**

Purdam soil and similar inclusions—75 percent

Contrasting inclusions—25 percent

### **Setting**

*Position on landscape:* Alluvial plains, basalt plains

*Elevation:* About 3,900 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 120 days

### **Characteristics of the Purdam Soil**

*Typical profile:*

0 to 6 inches—brown and pale brown silt loam

- 6 to 15 inches—pale brown silty clay loam
- 15 to 21 inches—pale brown silt loam
- 21 to 40 inches—very pale brown, weakly cemented hardpan

40 to 60 inches—variegated sand

*Depth class:* Moderately deep

*Depth to hardpan (rippable):* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Moderate

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

### ***Contrasting Inclusions***

Power, Owsel, Shano, and Minidoka soils; soils that have slopes of more than 4 percent

### ***Use and Management***

*Major uses:* Rangeland, irrigated cropland, homesites in a few areas

*Major management factors:* Available water capacity, depth to the hardpan, permeability, rooting depth, low precipitation

### ***Rangeland***

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation.
- Plants that can tolerate droughtiness are suitable for seeding.
- Installation of pipelines is limited by depth to the hardpan.

### ***Cropland***

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- Suitable irrigation methods are sprinkler, furrow, and corrugation systems.
- Leveling is needed in sloping areas for efficient application and removal of irrigation water.
- Land smoothing that involves only shallow cuts helps to avoid exposing the hardpan.
- Surface drains are needed to remove tailwater if surface irrigation is used.
- Regulating the applications of irrigation water helps to control runoff and erosion.

• Because permeability is moderately slow, adjusting the length of runs helps to ensure adequate infiltration of water.

• Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.

• Ripping or shattering the pan increases the effective root zone and available water capacity and improves internal drainage.

• Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.

• Maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the surface of the soil rough reduce the hazard of wind erosion.

### ***Building site development***

*General management considerations:*

- Excavation is hampered by the hardpan.
- The hardpan is rippable and therefore does not seriously limit most construction.
- Onsite investigation is needed to locate areas suitable for use as sites for septic tank absorption fields.

### ***Interpretive Groups***

*Land capability classification:* IIIe, irrigated; VIIs, nonirrigated

*Range site:* Loamy, 8- to 10-inch precipitation zone

## **121—Purdam silt loam, 4 to 8 percent slopes**

### ***Composition***

Purdam soil and similar inclusions—75 percent

Contrasting inclusions—25 percent

### ***Setting***

*Position on landscape:* Alluvial plains, basalt plains

*Elevation:* About 3,400 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 130 days

### ***Characteristics of the Purdam Soil***

*Typical profile:*

0 to 6 inches—brown and pale brown silt loam

6 to 15 inches—pale brown silty clay loam

15 to 21 inches—pale brown silt loam

21 to 40 inches—very pale brown, weakly cemented hardpan

40 to 60 inches—variegated sand

*Depth class:* Moderately deep

*Depth to hardpan (rippable):* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Moderate

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Colthorp, Chilcott, Owsel, and Power soils; soils that have slopes of less than 4 percent or more than 8 percent

### **Use and Management**

*Major uses:* Rangeland, irrigated cropland

*Major management factors:* Depth to the hardpan, hazard of water erosion, permeability, rooting depth, low precipitation

### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation.
- Plants that can tolerate droughtiness are suitable for seeding.
- Installation of pipelines is limited by depth to the hardpan.

### **Cropland**

*General management considerations:*

- The best suited irrigation method is a sprinkler system.
- The risk of erosion is increased if row crops are grown.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Ripping or shattering the pan increases the effective root zone and available water capacity and improves internal drainage.
- Keeping sprinkler irrigation rates at a minimum,

keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.

- Maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the surface of the soil rough reduce the hazard of wind erosion.

### **Interpretive Groups**

*Land capability classification:* IIIe, irrigated; VIe, nonirrigated

*Range site:* Loamy, 8- to 10-inch precipitation zone

## **122—Purdam-Sebree-Owsel complex, 0 to 8 percent slopes**

### **Composition**

Purdam soil and similar inclusions—40 percent

Sebree soil and similar inclusions—25 percent

Owsel soil and similar inclusions—20 percent

Contrasting inclusions—15 percent

### **Setting**

*Position on landscape:* Basalt plains, alluvial plains

*Elevation:* About 4,000 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 120 days

### **Characteristics of the Purdam Soil**

*Slope:* 1 to 8 percent

*Typical profile:*

0 to 6 inches—brown and pale brown silt loam

6 to 15 inches—pale brown silty clay loam

15 to 21 inches—pale brown silt loam

21 to 40 inches—very pale brown, weakly cemented hardpan

40 to 60 inches—variegated sand

*Depth class:* Moderately deep

*Depth to hardpan (rippable):* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Moderate

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Characteristics of the Sebree Soil**

*Slope:* 0 to 4 percent

*Typical profile:*

- 0 to 4 inches—very pale brown and brown silty clay loam (when mixed)
- 4 to 10 inches—yellowish brown silty clay loam
- 10 to 21 inches—light gray silt loam
- 21 to 56 inches—light gray and light yellowish brown, strongly cemented hardpan

*Depth class:* Moderately deep*Depth to hardpan (not rippable):* 20 to 30 inches*Drainage class:* Well drained*Permeability:* Slow*Available water capacity:* Moderate*Potential rooting depth:* 20 to 30 inches*Runoff:* Slow*Hazard of water erosion:* Slight*Salinity:* Moderately saline**Characteristics of the Owsel Soil***Slope:* 1 to 8 percent*Typical profile:*

- 0 to 4 inches—brown loam
- 4 to 18 inches—brown silt loam and silty clay loam
- 18 to 36 inches—pale brown and light yellowish brown loam
- 36 to 60 inches—pale brown fine sandy loam

*Depth class:* Very deep*Drainage class:* Well drained*Permeability:* Moderately slow*Available water capacity:* High*Potential rooting depth:* 60 inches or more*Runoff:* Slow or medium*Hazard of water erosion:* Moderate*Hazard of wind erosion:* Moderate**Contrasting Inclusions**

Chilcott, Power, and Shano soils; soils that have slopes of more than 8 percent

**Use and Management***Major uses:* Rangeland, irrigated cropland

*Major management factors:* Depth to the hardpan, hazard of water erosion, hazard of wind erosion, permeability, rooting depth, low precipitation

**Rangeland***Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation and by the salinity of the Sebree soil.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation and by the salinity of the Sebree soil.

- Plants that can tolerate droughtiness are suitable for seeding.
- Installation of pipelines is limited by depth to the hardpan in some areas.

**Cropland***General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- Production of irrigated crops is limited by the content of salts in some areas.
- The best suited irrigation method is a sprinkler system.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Ripping or shattering the pan increases the effective root zone and available water capacity and improves internal drainage.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- Farming across the slope, keeping tillage at a minimum, maintaining a cloddy surface, maintaining crop residue on or near the surface, maintaining tilth and the content of organic matter, and regularly adding manure reduce the hazards of wind erosion and water erosion.

**Interpretive Groups**

*Land capability classification:* Purdam and Owsel soils—IIIe, irrigated, and VIe, nonirrigated; Sebree soil—IVs, irrigated, and VIc, nonirrigated

*Range site:* Purdam and Owsel soils—Loamy, 8- to 10-inch precipitation zone; Sebree soil—Slick Spot-Sodic, 8- to 14-inch precipitation zone

**123—Quartzburg-Wagontown complex, 35 to 70 percent slopes****Composition**

Quartzburg soil and similar inclusions—45 percent  
Wagontown soil and similar inclusions—30 percent  
Contrasting inclusions—25 percent

**Setting***Position on landscape:* Mountainsides

*Elevation:* About 5,800 feet

*Average annual precipitation:* About 26 inches

*Average annual air temperature:* About 43 degrees F

*Frost-free season:* About 60 days

### **Characteristics of the Quartzburg Soil**

*Position on landscape:* South- and west-facing side slopes

*Thickness of organic mat on the surface:* 0.5 inch

*Typical profile:*

0 to 15 inches—grayish brown and light brownish gray gravelly loamy sand

15 to 25 inches—pale brown very gravelly loamy sand

25 to 36 inches—very pale brown extremely gravelly loamy coarse sand

36 inches—weathered bedrock

*Depth class:* Moderately deep

*Drainage class:* Excessively drained

*Permeability:* Very rapid

*Available water capacity:* Low

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Medium

*Hazard of water erosion:* Moderate

### **Characteristics of the Wagontown Soil**

*Position on landscape:* Foot slopes, north- and east-facing side slopes

*Thickness of organic mat on the surface:* 1.5 inches

*Typical profile:*

0 to 6 inches—pale brown gravelly coarse sandy loam

6 to 18 inches—light yellowish brown very gravelly coarse sandy loam

18 to 41 inches—light yellowish brown very gravelly loamy sand

41 inches—weathered bedrock

*Depth class:* Deep

*Drainage class:* Somewhat excessively drained

*Permeability:* Moderately rapid

*Available water capacity:* Low

*Potential rooting depth:* 40 to 60 inches

*Runoff:* Medium or rapid

*Hazard of water erosion:* Moderate

### **Contrasting Inclusions**

Switchback and Roanhide soils; Schoolhouse soils on ridges; Broad Canyon soils on steep, north-facing slopes; Rock outcrop

### **Use and Management**

*Major uses:* Wildlife habitat, grazing land, woodland

*Major management factors:* Available water capacity,

hazard of water erosion, slope, cooler soil temperatures on north-facing slopes

### **Woodland**

*Dominant vegetation in potential natural plant community:*

Quartzburg soil—ponderosa pine, antelope

bitterbrush, bluebunch wheatgrass; Wagontown

soil—Douglas fir, mountain snowberry, elk sedge

*Mean site index for ponderosa pine on the Quartzburg soil:* 100

*Estimated average annual production per acre of*

*ponderosa pine (commercial):* 4,100 cubic feet from a stand of 40-year-old trees 6 inches or more in diameter or 26,000 board feet (Scribner rule) from a stand of 80-year-old trees 11.6 inches or more in diameter

*Mean site index for Douglas fir on the Wagontown soil:* 72

*Estimated average annual production per acre of*

*Douglas fir (commercial):* 4,000 cubic feet from a stand of 40-year-old trees 6 inches or more in diameter or 25,000 board feet (Scribner rule) from a stand of 80-year-old trees 11.6 inches or more in diameter

*General management considerations:*

- Slope restricts the use of wheeled and tracked equipment on skid trails. Cable yarding generally is safer and results in less disturbance of the surface.
- The upper part of the Quartzburg soil is loose when dry, which limits the use of wheeled and tracked equipment.
- Constructing roads at midslope results in large cuts and fills and increases the risk of erosion.
- Cuts occasionally slump when saturated.
- Adequately designed road drainage systems reduce the risk of erosion.
- Steep yarding paths, skid trails, and firebreaks are subject to rilling and gullyng. A plant cover or water bars are needed.
- The waste material from roadbuilding can damage vegetation. It is also a potential source of sedimentation.
- Reforestation is difficult on the drier, south-facing slopes.
- The seedling mortality rate is high in summer in some areas because of inadequate soil moisture.
- Trees suitable for planting include ponderosa pine and Douglas fir.
- Avoiding excessive disturbance of the soil, seeding roads, cuts, and landings, and installing water bars and culverts reduce the risk of erosion.
- Selecting suitable species for planting helps to ensure



the establishment and survival of seedlings.

- Maintaining some of the larger trees in the stand provides shade for seedlings.
- Thinning before trees reach commercial size and selectively cutting mature trees improve the stands.
- Carefully managing regeneration reduces competition from less desirable plants and provides shade for seedlings.

#### **Grazable understory**

*Common forest understory plants:* Quartzburg soil—antelope bitterbrush, chokecherry, serviceberry, bluebunch wheatgrass, elk sedge, bluegrass, lupine; Wagontown soil—mountain snowberry, chokecherry, dogbane, snowbrush ceanothus, Solomons-seal, elk sedge

*Potential production of air-dry vegetation per acre:*

Quartzburg soil—400 to 1,000 pounds; Wagontown soil—400 to 800 pounds

*General management considerations:*

- The overstory generally is open on the Quartzburg soil; therefore, enough light reaches the ground for good growth of understory.
- If trees and shrubs are managed to create open areas, a good stand of plants suitable for use as forage can be produced.
- Recently burned or logged areas can be grazed until competition from trees eliminates the forage.
- Thinning, managed logging, or fire reduces the density of the overstory and increases the understory.
- Seeding disturbed areas to suitable plants increases forage production.
- Grazing should be deferred until tree seedlings are well established.

#### **Interpretive Groups**

*Land capability classification:* VIIe, nonirrigated

### **124—Quincy fine sand, 0 to 12 percent slopes**

#### **Composition**

Quincy soil and similar inclusions—85 percent

Contrasting inclusions—15 percent

#### **Setting**

*Position on landscape:* Alluvial terraces, dunes (fig. 6)

*Elevation:* About 3,000 feet

*Average annual precipitation:* About 8 inches

*Average annual air temperature:* About 51 degrees F

*Frost-free season:* About 135 days

#### **Characteristics of the Quincy Soil**

*Typical profile:*

0 to 60 inches—light gray fine sand

*Depth class:* Very deep

*Drainage class:* Excessively drained

*Permeability:* Rapid

*Available water capacity:* Low

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Severe

#### **Contrasting Inclusions**

Davey, Royal, Jacquith, and Buko soils; Dune land; soils that have slopes of more than 12 percent

#### **Use and Management**

*Major uses:* Rangeland, irrigated cropland

*Major management factors:* Available water capacity, hazard of wind erosion, risk of seepage, low precipitation

#### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Basin big sagebrush, Indian ricegrass, needleandthread

*General management considerations:*

- Forage production is limited mainly by low precipitation and the low available water capacity.
- The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation, the low available water capacity, and the hazard of wind erosion.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.

#### **Cropland**

*General management considerations:*

- Production of irrigated crops is limited by the low available water capacity and the hazard of wind erosion.
- The best suited irrigation method is a sprinkler system.
- Regulating the applications of irrigation water helps to avoid overirrigating and the leaching of plant nutrients.
- Maintaining crop residue on the surface, planting field windbreaks, keeping tillage at a minimum, and keeping the surface of the soil rough reduce the hazard of wind erosion.

#### **Interpretive Groups**

*Land capability classification:* IVe, irrigated; VIIe, nonirrigated



Figure 6.—An area of Quincy fine sand, 0 to 12 percent slopes. Bruneau Sand Dunes State Park is in the background.

*Range site:* Sand, 8- to 12-inch precipitation zone

### **125—Quincy loamy fine sand, 12 to 30 percent slopes**

#### ***Composition***

Quincy soil and similar inclusions—80 percent  
Contrasting inclusions—20 percent

#### ***Setting***

*Position on landscape:* Alluvial terraces, dunes  
*Elevation:* About 3,000 feet  
*Average annual precipitation:* About 8 inches  
*Average annual air temperature:* About 51 degrees F  
*Frost-free season:* About 135 days

### ***Characteristics of the Quincy Soil***

#### ***Typical profile:***

0 to 10 inches—light gray loamy fine sand  
10 to 60 inches—light gray fine sand

*Depth class:* Very deep

*Drainage class:* Excessively drained

*Permeability:* Rapid

*Available water capacity:* Low

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Severe

### ***Contrasting Inclusions***

Davey, Royal, and Buko soils; Dune land; soils that have slopes of more than 30 percent; soils that

have lacustrine sediment at a depth of 20 to 40 inches

### **Use and Management**

*Major use:* Rangeland

*Major management factors:* Available water capacity, hazard of water erosion, hazard of wind erosion, risk of seepage, slope, low precipitation

*Dominant vegetation in potential natural plant community:*

Basin big sagebrush, Indian ricegrass, needleandthread

*General management considerations:*

- Forage production is limited mainly by low precipitation and the low available water capacity.
- The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation, the low available water capacity, and the hazard of wind erosion.
- The use of equipment is limited by the slope.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.

### **Interpretive Groups**

*Land capability classification:* Vlle, nonirrigated

*Range site:* Sand, 8- to 12-inch precipitation zone

## **126—Rainey-Brownlee association, 10 to 50 percent slopes**

### **Composition**

Rainey soil and similar inclusions—45 percent

Brownlee soil and similar inclusions—35 percent

Contrasting inclusions—20 percent

### **Setting**

*Position on landscape:* Granitic hills

*Elevation:* About 4,500 feet

*Average annual precipitation:* About 15 inches

*Average annual air temperature:* About 47 degrees F

*Frost-free season:* About 90 days

### **Characteristics of the Rainey Soil**

*Position on landscape:* South-facing side slopes and shoulder slopes

*Typical profile:*

- 0 to 9 inches—dark grayish brown sandy loam
- 9 to 14 inches—brown gravelly coarse sandy loam
- 14 to 22 inches—very pale brown gravelly coarse sandy loam
- 22 to 32 inches—highly weathered bedrock

32 inches—unweathered bedrock

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability:* Moderately rapid

*Available water capacity:* Low

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Medium or rapid

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Characteristics of the Brownlee Soil**

*Position on landscape:* Foot slopes, toe slopes, north-facing side slopes

*Typical profile:*

0 to 10 inches—brown loam

10 to 19 inches—pale brown loam

19 to 28 inches—light yellowish brown loam

28 to 48 inches—reddish yellow clay loam

48 to 54 inches—reddish yellow sandy clay loam

54 to 60 inches—pink gravelly sandy clay loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Medium or rapid

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Oland and Van Dusen soils on north-facing slopes and toe slopes; Bauscher soils on steep, north-facing slopes at elevations above 4,800 feet; Schoolhouse soils on ridgetops; Farrot soils on south-facing slopes; Rock outcrop

### **Use and Management**

*Major use:* Rangeland

*Major management factors:* Available water capacity, hazard of water erosion, slope, low precipitation

*Dominant vegetation in potential natural plant community:*

Mountain big sagebrush, bluebunch wheatgrass

*General management considerations:*

- Forage production is limited mainly by the low available water capacity of the Rainey soil.
- The use of forage by livestock is limited by the slope.
- The suitability of this map unit for range seeding is fair. Seeding is limited by the slope in the steeper areas.
- Seeding the more favorable, less sloping areas of this map unit is difficult because of the pattern in which they

occur with the less favorable, more sloping areas.

### ***Interpretive Groups***

*Land capability classification:* Rainey soil—Vle, nonirrigated; Brownlee soil—VIIe, nonirrigated  
*Range site:* Rainey soil—South Slope Gravelly, 12- to 16-inch precipitation zone; Brownlee soil—Loamy, 12- to 16-inch precipitation zone

## **127—Rainey-Schoolhouse-Oland association, 30 to 70 percent slopes**

### ***Composition***

Rainey soil and similar inclusions—40 percent  
 Schoolhouse soil and similar inclusions—20 percent  
 Oland soil and similar inclusions—20 percent  
 Contrasting inclusions—20 percent

### ***Setting***

*Position on landscape:* Granitic hills  
*Elevation:* About 4,500 feet  
*Average annual precipitation:* About 17 inches  
*Average annual air temperature:* About 47 degrees F  
*Frost-free season:* About 90 days

### ***Characteristics of the Rainey Soil***

*Position on landscape:* South-facing side slopes

*Typical profile:*

- 0 to 9 inches—dark grayish brown sandy loam
- 9 to 14 inches—brown gravelly coarse sandy loam
- 14 to 22 inches—very pale brown gravelly coarse sandy loam
- 22 to 32 inches—highly weathered bedrock
- 32 inches—unweathered bedrock

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability:* Moderately rapid

*Available water capacity:* Low

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Rapid

*Hazard of water erosion:* Severe

*Hazard of wind erosion:* Moderate

### ***Characteristics of the Schoolhouse Soil***

*Position on landscape:* Ridges, south-facing side slopes

*Percent of rock fragments on the surface:* 25 percent pebbles

*Typical profile:*

- 0 to 5 inches—grayish brown and brown gravelly loamy sand
- 5 to 17 inches—pinkish white extremely gravelly loamy sand

17 inches—unweathered bedrock

*Depth class:* Shallow

*Drainage class:* Excessively drained

*Permeability:* Very rapid

*Available water capacity:* Low

*Potential rooting depth:* 10 to 20 inches

*Runoff:* Rapid

*Hazard of water erosion:* Severe

### ***Characteristics of the Oland Soil***

*Position on landscape:* Toe slopes, north-facing side slopes

*Percent of rock fragments on the surface:* 25 percent pebbles

*Typical profile:*

- 0 to 17 inches—dark grayish brown gravelly loam
- 17 to 23 inches—dark brown very cobbly loam
- 23 to 60 inches—light yellowish brown very cobbly sandy loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Moderate

*Potential rooting depth:* 60 inches or more

*Runoff:* Rapid

*Hazard of water erosion:* Severe

*Hazard of wind erosion:* Moderate

### ***Contrasting Inclusions***

Haw and Farrot soils on south-facing slopes; Roanhide and Bauscher soils on north-facing slopes; Van Dusen soils on foot slopes; Rock outcrop; soils that have slopes of less than 30 percent

### ***Use and Management***

*Major use:* Rangeland

*Major management factors:* Available water capacity, depth to bedrock, hazard of water erosion, rooting depth, slope

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, bluebunch wheatgrass

*General management considerations:*

- Forage production is limited mainly by the restricted rooting depth and available water capacity.
- The use of forage by livestock is limited by the slope.
- The suitability of this map unit for range seeding is poor. Seeding is limited by the slope.
- Construction of fences on the Schoolhouse soil is limited by the depth to bedrock.

### ***Interpretive Groups***

*Land capability classification:* Rainey and Oland soils—

VIIe, nonirrigated; Schoolhouse soil—VIIIs, nonirrigated

*Range site:* Rainey and Schoolhouse soils—South Slope Gravelly, 12- to 16-inch precipitation zone; Oland soil—Loamy, 12- to 16-inch precipitation zone

## **128—Rainey-Van Dusen association, 10 to 30 percent slopes**

### ***Composition***

Rainey soil and similar inclusions—45 percent  
Van Dusen soil and similar inclusions—30 percent  
Contrasting inclusions—25 percent

### ***Setting***

*Position on landscape:* Granitic hills  
*Elevation:* About 4,300 feet  
*Average annual precipitation:* About 14 inches  
*Average annual air temperature:* About 47 degrees F  
*Frost-free season:* About 95 days

### ***Characteristics of the Rainey Soil***

*Position on landscape:* Ridges, shoulder slopes, south-facing side slopes

*Typical profile:*

0 to 9 inches—dark grayish brown sandy loam  
9 to 14 inches—brown gravelly coarse sandy loam  
14 to 22 inches—very pale brown gravelly coarse sandy loam  
22 to 32 inches—highly weathered bedrock  
32 inches—unweathered bedrock

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability:* Moderately rapid

*Available water capacity:* Low

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### ***Characteristics of the Van Dusen Soil***

*Position on landscape:* Foot slopes, toe slopes, north-facing side slopes

*Typical profile:*

0 to 21 inches—grayish brown and brown loam  
21 to 40 inches—yellowish brown clay loam  
40 to 60 inches—very pale brown sandy loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### ***Contrasting Inclusions***

Farrot soils on south-facing slopes; Schoolhouse soils on ridges; Bauscher and Oland soils on steep, north-facing slopes; soils that have slopes of more than 30 percent; soils that are more than 35 percent gravel throughout

### ***Use and Management***

*Major use:* Rangeland

*Major management factors:* Available water capacity, hazard of water erosion

*Dominant vegetation in potential natural plant community:*

Mountain big sagebrush, bluebunch wheatgrass

*General management considerations:*

- Forage production is limited mainly by the low available water capacity of the Rainey soil.
- The suitability of this map unit for range seeding is fair. Seeding is limited by the hazard of water erosion and the low available water capacity of the Rainey soil.
- Plants that can tolerate droughtiness are suitable for seeding.

### ***Interpretive Groups***

*Land capability classification:* IVE, nonirrigated

*Range site:* Rainey soil—South Slope Gravelly, 12- to 16-inch precipitation zone; Van Dusen soil—Loamy, 12- to 16-inch precipitation zone

## **129—Rainey-Van Dusen-Schoolhouse association, 30 to 60 percent slopes**

### ***Composition***

Rainey soil and similar inclusions—35 percent  
Van Dusen soil and similar inclusions—30 percent  
Schoolhouse soil and similar inclusions—15 percent  
Contrasting inclusions—20 percent

### ***Setting***

*Position on landscape:* Granitic hills  
*Elevation:* About 4,500 feet  
*Average annual precipitation:* About 14 inches  
*Average annual air temperature:* About 47 degrees F  
*Frost-free season:* About 90 days

### **Characteristics of the Rainey Soil**

*Position on landscape:* Shoulder slopes, south-facing side slopes

*Typical profile:*

- 0 to 9 inches—dark grayish brown sandy loam
- 9 to 14 inches—brown gravelly coarse sandy loam
- 14 to 22 inches—very pale brown gravelly coarse sandy loam
- 22 to 32 inches—highly weathered bedrock
- 32 inches—unweathered bedrock

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability:* Moderately rapid

*Available water capacity:* Low

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Rapid

*Hazard of water erosion:* Severe

*Hazard of wind erosion:* Moderate

### **Characteristics of the Van Dusen Soil**

*Position on landscape:* Foot slopes, toe slopes, north-facing side slopes

*Typical profile:*

- 0 to 21 inches—grayish brown and brown loam
- 21 to 40 inches—yellowish brown clay loam
- 40 to 60 inches—very pale brown sandy loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Rapid

*Hazard of water erosion:* Severe

*Hazard of wind erosion:* Moderate

### **Characteristics of the Schoolhouse Soil**

*Position on landscape:* Ridgetops, shoulder slopes

*Percent of rock fragments on the surface:* 20 percent pebbles

*Typical profile:*

- 0 to 5 inches—grayish brown and brown gravelly loamy sand
- 5 to 17 inches—pinkish white extremely gravelly loamy sand
- 17 inches—unweathered bedrock

*Depth class:* Shallow

*Drainage class:* Excessively drained

*Permeability:* Very rapid

*Available water capacity:* Low

*Potential rooting depth:* 10 to 20 inches

*Runoff:* Rapid

*Hazard of water erosion:* Severe

### **Contrasting Inclusions**

Oland soils on north-facing slopes; Farrot soils on south-facing slopes; Bauscher soils on steep, north-facing slopes at elevations above 4,800 feet; Rock outcrop; soils that have slopes of less than 30 percent; soils that are more than 35 percent rock fragments between depths of 20 and 40 inches

### **Use and Management**

*Major use:* Rangeland

*Major management factors:* Available water capacity, hazard of water erosion, slope

*Dominant vegetation in potential natural plant community:* Mountain big sagebrush, bluebunch wheatgrass

*General management considerations:*

- Forage production is limited mainly by the low available water capacity of the Rainey and Schoolhouse soils.
- The use of forage by livestock is limited by the slope.
- The suitability of this map unit for range seeding is poor. Seeding is limited by the slope.

### **Interpretive Groups**

*Land capability classification:* Rainey and Van Dusen soils—VIIe, nonirrigated; Schoolhouse soil—VIIc, nonirrigated

*Range site:* Rainey and Schoolhouse soils—South Slope Gravelly, 12- to 16-inch precipitation zone; Van Dusen soil—Loamy, 12- to 16-inch precipitation zone

## **130—Roanhide-Bauscher association, 10 to 30 percent slopes**

### **Composition**

Roanhide soil and similar inclusions—45 percent  
Bauscher soil and similar inclusions—40 percent  
Contrasting inclusions—15 percent

### **Setting**

*Position on landscape:* Granitic hills

*Elevation:* About 5,500 feet

*Average annual precipitation:* About 16 inches

*Average annual air temperature:* About 43 degrees F

*Frost-free season:* About 70 days

### **Characteristics of the Roanhide Soil**

*Position on landscape:* Ridges, south-facing side slopes

*Typical profile:*

- 0 to 8 inches—gray and grayish brown sandy loam
- 8 to 12 inches—grayish brown sandy loam
- 12 to 32 inches—light gray sandy loam
- 32 inches—unweathered bedrock

*Depth class:* Moderately deep*Drainage class:* Well drained*Permeability:* Moderately rapid*Available water capacity:* Low*Potential rooting depth:* 20 to 40 inches*Runoff:* Medium*Hazard of water erosion:* Moderate*Hazard of wind erosion:* Moderate**Characteristics of the Bauscher Soil***Position on landscape:* Toe slopes, north-facing side slopes*Typical profile:*

- 0 to 29 inches—brown loam
- 29 to 49 inches—brown and light yellowish brown clay loam
- 49 to 60 inches—very pale brown sandy loam

*Depth class:* Very deep*Drainage class:* Well drained*Permeability:* Moderately slow*Available water capacity:* High*Potential rooting depth:* 60 inches or more*Runoff:* Medium*Hazard of water erosion:* Moderate*Hazard of wind erosion:* Moderate**Contrasting Inclusions**

Schoolhouse soils on ridges and near Rock outcrop;  
 Rock outcrop; soils that have slopes of less than 10 percent or more than 30 percent

**Use and Management***Major use:* Rangeland*Major management factors:* Depth to bedrock, hazard of water erosion, slope*Dominant vegetation in potential natural plant community:*

Mountain big sagebrush, Idaho fescue, bluebunch wheatgrass

*General management considerations:*

- The suitability of this map unit for range seeding is fair. Seeding is limited by the slope.
- Installation of pipelines is limited by the depth to bedrock in the Roanhide soil.

**Interpretive Groups***Land capability classification:* IVe, nonirrigated*Range site:* Loamy, 12- to 16-inch precipitation zone**131—Roanhide-Bauscher-Schoolhouse association, 10 to 60 percent slopes****Composition**

Roanhide soil and similar inclusions—40 percent

Bauscher soil and similar inclusions—25 percent

Schoolhouse soil and similar inclusions—20 percent

Contrasting inclusions—15 percent

**Setting***Position on landscape:* Granitic hills (fig. 7)*Elevation:* About 5,500 feet*Average annual precipitation:* About 16 inches*Average annual air temperature:* About 43 degrees F*Frost-free season:* About 70 days**Characteristics of the Roanhide Soil***Position on landscape:* Ridges, south-facing side slopes*Slope:* 30 to 60 percent*Typical profile:*

- 0 to 8 inches—gray and grayish brown sandy loam
- 8 to 12 inches—grayish brown sandy loam
- 12 to 32 inches—light gray sandy loam
- 32 inches—unweathered bedrock

*Depth class:* Moderately deep*Drainage class:* Well drained*Permeability:* Moderately rapid*Available water capacity:* Low*Potential rooting depth:* 20 to 40 inches*Runoff:* Medium or rapid*Hazard of water erosion:* Severe*Hazard of wind erosion:* Moderate**Characteristics of the Bauscher Soil***Position on landscape:* Toe slopes, north-facing side slopes*Slope:* 20 to 45 percent*Typical profile:*

- 0 to 29 inches—brown loam
- 29 to 49 inches—brown and light yellowish brown clay loam
- 49 to 60 inches—very pale brown sandy loam

*Depth class:* Very deep*Drainage class:* Well drained*Permeability:* Moderately slow*Available water capacity:* High*Potential rooting depth:* 60 inches or more*Runoff:* Medium or rapid



Figure 7.—An area of Roanhide-Bauscher-Schoolhouse association, 10 to 60 percent slopes, overlooking Smith Prairie. Douglas fir and ponderosa pine are in the included areas of Quartzburg and Wagontown soils.

*Hazard of water erosion:* Severe

*Hazard of wind erosion:* Moderate

#### **Characteristics of the Schoolhouse Soil**

*Position on landscape:* Ridges near areas of Rock outcrop

*Slope:* 10 to 20 percent

*Percent of rock fragments on the surface:* 5 to 20 percent cobbles and pebbles

*Typical profile:*

0 to 5 inches—grayish brown and brown gravelly loamy sand

5 to 17 inches—pinkish white extremely gravelly loamy sand

17 inches—unweathered bedrock

*Depth class:* Shallow

*Drainage class:* Excessively drained

*Permeability:* Very rapid

*Available water capacity:* Low

*Potential rooting depth:* 10 to 20 inches

*Runoff:* Slow

*Hazard of water erosion:* Slight

#### **Contrasting Inclusions**

Oland, Gaib, Quartzburg, and Wagontown soils; Rock outcrop; soils that have slopes of less than 10 percent



**Use and Management**

*Major use:* Rangeland

*Major management factors:* Available water capacity, depth to bedrock, hazard of water erosion, rooting depth, slope

*Dominant vegetation in potential natural plant community:*

Roanhide and Schoolhouse soils—mountain big sagebrush, bluebunch wheatgrass; Bauscher soil—mountain big sagebrush, Idaho fescue

*General management considerations:*

- The use of forage by livestock is limited by the slope.
- The suitability of this map unit for range seeding is poor. Seeding is limited by the slope.
- Installation of pipelines is limited by the slope and the depth to bedrock in some areas.
- Construction of fences on the Schoolhouse soil is limited by the depth to bedrock.

**Interpretive Groups**

*Land capability classification:* Roanhide and Bauscher soils—VIIe, nonirrigated; Schoolhouse soil—VIIs, nonirrigated

*Range site:* Roanhide and Schoolhouse soils—South Slope Gravelly, 12- to 16-inch precipitation zone; Bauscher soil—North Slope Loamy, 16- to 20-inch precipitation zone

**132—Rock outcrop-Rubble land association****Composition**

Rock outcrop—40 percent

Rubble land—40 percent

Contrasting inclusions—20 percent

**Setting**

*Position on landscape:* Canyons, escarpments, basalt plains, basalt terraces, mountains, ridges

*Elevation:* About 3,500 feet

*Average annual precipitation:* About 10 inches

*Average annual air temperature:* About 49 degrees F

*Frost-free season:* About 130 days

**Characteristics of the Rock Outcrop**

*Kind of material:* Exposed basalt or rhyolite that is fractured in some areas

**Characteristics of the Rubble Land**

*Kind of material:* More than 90 percent loose surface stones

**Contrasting Inclusions**

Chilcott, Kunaton, Colthorp, Trevino, Gaib, Schoolhouse, and Ruckles soils

**Major Use**

Wildlife habitat

**Interpretive Groups**

*Land capability classification:* VIII

**133—Royal fine sandy loam, 0 to 4 percent slopes****Composition**

Royal soil and similar inclusions—80 percent

Contrasting inclusions—20 percent

**Setting**

*Position on landscape:* Fan terraces, stream terraces

*Elevation:* About 2,700 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 52 degrees F

*Frost-free season:* About 135 days

**Characteristics of the Royal Soil**

*Typical profile:*

0 to 5 inches—brown fine sandy loam

5 to 11 inches—brown fine sandy loam

11 to 60 inches—pale brown and very pale brown fine sandy loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately rapid

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

**Contrasting Inclusions**

Davey, Truesdale, Buko, and Abgese soils; soils that have slopes of more than 4 percent

**Use and Management**

*Major uses:* Rangeland, irrigated cropland, homesites in a few areas

*Major management factors:* Hazard of wind erosion, risk of seepage, low precipitation

**Rangeland**

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.

- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation.
- Plants that can tolerate droughtiness are suitable for seeding.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.

#### **Cropland**

##### *General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- Suitable irrigation methods are sprinkler, furrow, and corrugation systems.
- Leveling is needed in sloping areas for efficient application and removal of irrigation water.
- Surface drains are needed to remove tailwater if surface irrigation is used.
- Regulating the applications of irrigation water helps to control runoff and erosion and to avoid overirrigating and the leaching of plant nutrients.
- Maintaining crop residue on the surface, planting field windbreaks, keeping tillage at a minimum, and keeping the surface of the soil rough reduce the hazard of wind erosion.

#### **Building site development**

##### *General management considerations:*

- Excavation can expose soil material that is highly susceptible to wind erosion.
- Cuts are not stable and therefore are subject to slumping.
- This map unit is limited as a site for septic tank absorption fields because of the moderately rapid permeability, which causes poor filtration of the effluent and can result in pollution of the water supply.
- Onsite investigation is needed to locate areas suitable for use as sites for septic tank absorption fields.

#### **Interpretive Groups**

*Land capability classification:* IIe, irrigated; VIc, nonirrigated

*Range site:* Sandy Loam, 8- to 12-inch precipitation zone

### **134—Royal fine sandy loam, 4 to 12 percent slopes**

#### **Composition**

Royal soil and similar inclusions—80 percent

Contrasting inclusions—20 percent

#### **Setting**

*Position on landscape:* Fan terraces

*Elevation:* About 2,900 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 51 degrees F

*Frost-free season:* About 130 days

#### **Characteristics of the Royal Soil**

##### *Typical profile:*

0 to 11 inches—brown fine sandy loam

11 to 60 inches—pale brown and very pale brown fine sandy loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately rapid

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

#### **Contrasting Inclusions**

Davey, Buko, Shano, and Truesdale soils; soils that are more than 20 percent durinodes between depths of 15 and 40 inches; soils that have hard lacustrine sediment at a depth of 20 to 40 inches

#### **Use and Management**

*Major uses:* Rangeland, irrigated cropland

*Major management factors:* Hazard of water erosion, hazard of wind erosion, risk of seepage, low precipitation

#### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass

##### *General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation.
- Plants that can tolerate droughtiness are suitable for seeding.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.

#### **Cropland**

##### *General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.

- The best suited irrigation method is a sprinkler system.
- Regulating the applications of irrigation water helps to control runoff and erosion and to avoid overirrigating and the leaching of plant nutrients.
- Farming across the slope, keeping tillage at a minimum, maintaining a cloddy surface, maintaining crop residue on or near the surface, and maintaining tillage and the content of organic matter reduce the hazards of wind erosion and water erosion.

### ***Interpretive Groups***

*Land capability classification:* IVe, irrigated; Vle, nonirrigated

*Range site:* Sandy Loam, 8- to 12-inch precipitation zone

## **135—Royal-Davey complex, 0 to 12 percent slopes**

### ***Composition***

Royal soil and similar inclusions—45 percent

Davey soil and similar inclusions—30 percent

Contrasting inclusions—25 percent

### ***Setting***

*Position on landscape:* Fan terraces

*Elevation:* About 2,800 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 51 degrees F

*Frost-free season:* About 135 days

### ***Characteristics of the Royal Soil***

*Typical profile:*

0 to 11 inches—brown fine sandy loam

11 to 60 inches—pale brown and very pale brown fine sandy loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately rapid

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### ***Characteristics of the Davey Soil***

*Typical profile:*

0 to 15 inches—light gray loamy fine sand

15 to 22 inches—pale brown fine sandy loam

22 to 60 inches—light gray loamy sand

*Depth class:* Very deep

*Drainage class:* Somewhat excessively drained

*Permeability:* Moderately rapid

*Available water capacity:* Moderate

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Severe

### ***Contrasting Inclusions***

Quincy, Shano, Truesdale, and Buko soils; soils that have slopes of more than 12 percent; soils that have consolidated material at a depth of 20 to 40 inches

### ***Use and Management***

*Major uses:* Rangeland, irrigated cropland

*Major management factors:* Hazard of water erosion, hazard of wind erosion, risk of seepage, low precipitation

#### ***Rangeland***

*Dominant vegetation in potential natural plant community:*  
Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation and the hazard of wind erosion.
- Plants that can tolerate droughtiness are suitable for seeding.
- Seeding burned or disturbed areas controls blowing and drifting sand.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.

#### ***Cropland***

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- The best suited irrigation method is a sprinkler system.
- Regulating the applications of irrigation water helps to control runoff and erosion and to avoid overirrigating and the leaching of plant nutrients.
- Farming across the slope, keeping tillage at a minimum, maintaining a cloddy surface, maintaining crop residue on the surface, and planting field windbreaks reduce the hazards of wind erosion and water erosion.

### ***Interpretive Groups***

*Land capability classification:* IVe, irrigated; VIe, nonirrigated

*Range site:* Sandy Loam, 8- to 12-inch precipitation zone

## **136—Royal-Davey complex, 12 to 40 percent slopes**

### ***Composition***

Royal soil and similar inclusions—40 percent

Davey soil and similar inclusions—35 percent

Contrasting inclusions—25 percent

### ***Setting***

*Position on landscape:* Fan terraces

*Elevation:* About 3,100 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 51 degrees F

*Frost-free season:* About 130 days

### ***Characteristics of the Royal Soil***

*Typical profile:*

0 to 11 inches—brown fine sandy loam

11 to 60 inches—pale brown and very pale brown fine sandy loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately rapid

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### ***Characteristics of the Davey Soil***

*Typical profile:*

0 to 15 inches—light gray loamy fine sand

15 to 22 inches—pale brown fine sandy loam

22 to 60 inches—light gray loamy sand

*Depth class:* Very deep

*Drainage class:* Somewhat excessively drained

*Permeability:* Moderately rapid

*Available water capacity:* Moderate

*Potential rooting depth:* 60 inches or more

*Runoff:* Medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Severe

### ***Contrasting Inclusions***

Truesdale, Buko, and Shano soils; Quincy soils that

support basin big sagebrush; soils that are 10 to 40 inches deep to hard lacustrine sediment; soils that are more than 20 percent durinodes between depths of 20 and 40 inches

### ***Use and Management***

*Major use:* Rangeland

*Major management factors:* Hazard of water erosion, hazard of wind erosion, risk of seepage, low precipitation

*Dominant vegetation in potential natural plant community:* Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.

- The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation, the slope, and the hazard of erosion.

### ***Interpretive Groups***

*Land capability classification:* VIe, nonirrigated

*Range site:* Sandy Loam, 8- to 12-inch precipitation zone

## **137—Royal-Shano-Rock outcrop complex, 0 to 20 percent slopes**

### ***Composition***

Royal soil and similar inclusions—30 percent

Shano soil and similar inclusions—25 percent

Rock outcrop—20 percent

Contrasting inclusions—25 percent

### ***Setting***

*Position on landscape:* Basalt plains, fan terraces

*Elevation:* About 2,900 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 51 degrees F

*Frost-free season:* About 130 days

### ***Characteristics of the Royal Soil***

*Position on landscape:* Side slopes

*Slope:* 0 to 20 percent

*Typical profile:*

0 to 11 inches—brown fine sandy loam

11 to 60 inches—pale brown and very pale brown fine sandy loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately rapid

*Available water capacity:* High  
*Potential rooting depth:* 60 inches or more  
*Runoff:* Slow or medium  
*Hazard of water erosion:* Moderate  
*Hazard of wind erosion:* Moderate

### **Characteristics of the Shano Soil**

*Position on landscape:* Concave areas  
*Slope:* 0 to 12 percent  
*Typical profile:*  
 0 to 15 inches—pale brown loam  
 15 to 26 inches—white silt loam  
 26 to 42 inches—white very fine sandy loam  
 42 to 60 inches—pale brown fine sandy loam  
*Depth class:* Very deep  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* High  
*Potential rooting depth:* 60 inches or more  
*Runoff:* Slow or medium  
*Hazard of water erosion:* Moderate  
*Hazard of wind erosion:* Moderate

### **Characteristics of the Rock Outcrop**

*Kind of material:* Exposed basalt that is fractured in some areas

### **Contrasting Inclusions**

Davey, Vining, Quincy, Sidlake, Trevino, and Purdam soils; Rubble land; soils that have slopes of more than 20 percent

### **Use and Management**

*Major use:* Rangeland  
*Major management factors:* Hazard of water erosion, hazard of wind erosion, areas of Rock outcrop, slope, low precipitation  
*Dominant vegetation in potential natural plant community:*  
 Royal soil—Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass; Shano soil—Wyoming big sagebrush, Thurber needlegrass  
*General management considerations:*  
 • Forage production is limited mainly by low precipitation.  
 • The use of forage by livestock is limited by the areas of Rock outcrop.  
 • The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation, the hazard of wind erosion, and the areas of Rock outcrop.  
 • Plants that can tolerate droughtiness are suitable for seeding.  
 • Seeding the areas of Royal and Shano soils is difficult

because of the pattern in which they occur with the areas of Rock outcrop.

• Installation of pipelines is limited by the areas of Rock outcrop.

### **Interpretive Groups**

*Land capability classification:* Vle, nonirrigated  
*Range site:* Royal soil—Sandy Loam, 8- to 12-inch precipitation zone; Shano soil—Loamy, 8- to 10-inch precipitation zone

## **138—Royal-Truesdale fine sandy loams, 0 to 4 percent slopes**

### **Composition**

Royal soil and similar inclusions—45 percent  
 Truesdale soil and similar inclusions—35 percent  
 Contrasting inclusions—20 percent

### **Setting**

*Position on landscape:* Alluvial plains, fan terraces  
*Elevation:* About 2,800 feet  
*Average annual precipitation:* About 9 inches  
*Average annual air temperature:* About 51 degrees F  
*Frost-free season:* About 135 days

### **Characteristics of the Royal Soil**

*Typical profile:*  
 0 to 11 inches—brown fine sandy loam  
 11 to 60 inches—pale brown and very pale brown fine sandy loam  
*Depth class:* Very deep  
*Drainage class:* Well drained  
*Permeability:* Moderately rapid  
*Available water capacity:* High  
*Potential rooting depth:* 60 inches or more  
*Runoff:* Slow  
*Hazard of water erosion:* Slight  
*Hazard of wind erosion:* Moderate

### **Characteristics of the Truesdale Soil**

*Typical profile:*  
 0 to 27 inches—pale brown fine sandy loam  
 27 to 60 inches—very pale brown, weakly cemented hardpan  
*Depth class:* Moderately deep  
*Depth to hardpan (rippable):* 20 to 40 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately rapid  
*Available water capacity:* Low  
*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

### ***Contrasting Inclusions***

Buko, Scoon, and Quincy soils; soils that have slopes of more than 4 percent

### ***Use and Management***

*Major uses:* Rangeland, irrigated cropland

*Major management factors:* Available water capacity, depth to the hardpan, hazard of wind erosion, rooting depth, low precipitation

### ***Rangeland***

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation and the hazard of wind erosion.
- Plants that can tolerate droughtiness are suitable for seeding.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.
- Installation of pipelines is limited by depth to the hardpan in some areas.

### ***Cropland***

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- Suitable irrigation methods are sprinkler, furrow, and corrugation systems.
- Leveling is needed in sloping areas for efficient application and removal of irrigation water.
- Surface drains are needed to remove tailwater if surface irrigation is used.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Ripping or shattering the pan increases the effective rooting depth and available water capacity and improves internal drainage.
- Maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the surface of the soil rough reduce the hazard of wind erosion.

### ***Interpretive Groups***

*Land capability classification:* IIe, irrigated; VIIs, nonirrigated

*Range site:* Sandy Loam, 8- to 12-inch precipitation zone

## **139—Ruckles extremely stony loam, 1 to 8 percent slopes**

### ***Composition***

Ruckles soil and similar inclusions—75 percent

Contrasting inclusions—25 percent

### ***Setting***

*Position on landscape:* Basalt plains, terraces

*Elevation:* About 5,100 feet

*Average annual precipitation:* About 13 inches

*Average annual air temperature:* About 46 degrees F

*Frost-free season:* About 90 days

### ***Characteristics of the Ruckles Soil***

*Percent of rock fragments on the surface:* 20 percent stones and cobbles

*Typical profile:*

0 to 6 inches—brown extremely stony loam

6 to 11 inches—brown and light brown very stony clay

11 inches—unweathered bedrock

*Depth class:* Shallow

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Low

*Potential rooting depth:* 10 to 20 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Slight

### ***Contrasting Inclusions***

Chardoton and Karcas soils on mounds; soils that are similar to the Ruckles soil but are less than 35 percent rock fragments throughout; Rock outcrop; Rubble land; soils that have slopes of more than 8 percent; soils that are moderately deep

### ***Use and Management***

*Major use:* Rangeland

*Major management factors:* Available water capacity, stones on the surface, depth to bedrock, hazard of water erosion

*Dominant vegetation in potential natural plant community:*

Low sagebrush, bluebunch wheatgrass

*General management considerations:*

- The suitability of this map unit for range seeding is poor. Seeding is limited by the content of stones in the upper layer.

- Installation of pipelines is limited by the cobbles and stones on the surface and by the depth to bedrock.
- Construction of fences is limited by the depth to bedrock.

### ***Interpretive Groups***

*Land capability classification:* VIIs, nonirrigated

*Range site:* Shallow Stony Loam, 8- to 16-inch precipitation zone

## **140—Schoolhouse-Rock outcrop complex, 40 to 90 percent slopes**

### ***Composition***

Schoolhouse soil and similar inclusions—55 percent

Rock outcrop 30 percent

Contrasting inclusions—15 percent

### ***Setting***

*Position on landscape:* Granitic hills, south-facing canyonsides

*Elevation:* About 4,000 feet

*Average annual precipitation:* About 20 inches

*Average annual air temperature:* About 46 degrees F

*Frost-free season:* About 90 days

### ***Characteristics of the Schoolhouse Soil***

*Percent of rock fragments on the surface:* 5 to 20 percent cobbles and pebbles

*Typical profile:*

0 to 5 inches—grayish brown and brown gravelly loamy sand

5 to 17 inches—pinkish white extremely gravelly loamy sand

17 inches—unweathered bedrock

*Depth class:* Shallow

*Drainage class:* Excessively drained

*Permeability:* Very rapid

*Available water capacity:* Low

*Potential rooting depth:* 12 to 20 inches

*Runoff:* Medium or rapid

*Hazard of water erosion:* Severe

### ***Characteristics of the Rock Outcrop***

*Kind of material:* Exposed coarse-grained igneous rock

### ***Contrasting Inclusions***

Rainey, Farrot, Oland, and Roanhedge soils; soils that have slopes of less than 40 percent

### ***Use and Management***

*Major use:* Rangeland

*Major management factors:* Available water capacity, depth to bedrock, hazard of water erosion, rooting depth, areas of Rock outcrop

*Dominant vegetation in potential natural plant community:*

Mountain big sagebrush, bluebunch wheatgrass

*General management considerations:*

- Forage production is limited mainly by the low available water capacity and the restricted rooting depth.
- The use of forage by livestock is limited by the slope.
- The suitability of this map unit for range seeding is poor. Seeding is limited by the slope and the areas of Rock outcrop.

### ***Interpretive Groups***

*Land capability classification:* VIIs, nonirrigated

*Range site:* Schoolhouse soil—South Slope Gravelly, 12- to 16-inch precipitation zone

## **141—Scism silt loam, 0 to 4 percent slopes**

### ***Composition***

Scism soil and similar inclusions—80 percent

Contrasting inclusions—20 percent

### ***Setting***

*Position on landscape:* Basalt plains, alluvial plains

*Elevation:* About 3,200 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 130 days

### ***Characteristics of the Scism Soil***

*Typical profile:*

0 to 12 inches—light grayish brown and light gray silt loam

12 to 20 inches—light gray silt loam

20 to 25 inches—light gray very fine sandy loam

25 to 29 inches—brown, weakly cemented hardpan

29 to 34 inches—pale brown sandy loam

34 to 60 inches—very pale brown loam

*Depth class:* Moderately deep

*Depth to hardpan (rippable):* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Moderate

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

### ***Contrasting Inclusions***

Garbutt, Minveno, and Minidoka soils; soils that have slopes of more than 4 percent

### ***Use and Management***

*Major uses:* Irrigated cropland, rangeland

*Major management factors:* Available water capacity, depth to the hardpan, hazard of wind erosion, rooting depth, low precipitation

### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation.
- Plants that can tolerate droughtiness are suitable for seeding.
- Installation of pipelines is limited by depth to the hardpan.

### **Cropland**

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- Suitable irrigation methods are sprinkler, furrow, and corrugation systems.
- Leveling is needed in sloping areas for efficient application and removal of irrigation water.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- Maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the surface of the soil rough reduce the hazard of wind erosion.

### ***Interpretive Groups***

*Land capability classification:* IIe, irrigated; VIs, nonirrigated

*Range site:* Loamy, 8- to 10-inch precipitation zone

## **142—Scoon very fine sandy loam, 0 to 4 percent slopes**

### ***Composition***

Scoon soil and similar inclusions—75 percent

Contrasting inclusions—25 percent

### ***Setting***

*Position on landscape:* Fan terraces

*Elevation:* About 3,100 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 130 days

### ***Characteristics of the Scoon Soil***

*Typical profile:*

- 0 to 3 inches—pale brown very fine sandy loam
- 3 to 6 inches—pale brown silt loam
- 6 to 15 inches—pale brown loam
- 15 to 29 inches—pale brown, strongly cemented hardpan
- 29 to 42 inches—pale brown fine sandy loam
- 42 to 68 inches—light yellowish brown gravelly loamy fine sand

*Depth class:* Shallow

*Depth to hardpan (not rippable):* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Low

*Potential rooting depth:* 10 to 20 inches

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

### ***Contrasting Inclusions***

Truesdale, Minidoka, Elijah, Purdam, and Buko soils; soils that have slopes of more than 4 percent

### ***Use and Management***

*Major uses:* Irrigated cropland, rangeland

*Major management factors:* Available water capacity, depth to the hardpan, hazard of wind erosion, rooting depth, low precipitation

### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation.



- Plants that can tolerate droughtiness are suitable for seeding.
- Installation of pipelines and fences is limited by depth to the hardpan.

### **Cropland**

#### *General management considerations:*

- Production of irrigated crops is limited by the low available water capacity and restricted rooting depth.
- The best suited irrigation method is a sprinkler system.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Ripping or shattering the pan increases the effective root zone and available water capacity and improves internal drainage.
- Maintaining crop residue on the surface, planting field windbreaks, keeping tillage at a minimum, and keeping the surface of the soil rough reduce the hazard of wind erosion.

### **Interpretive Groups**

*Land capability classification:* IVe, irrigated; VIs, nonirrigated

*Range site:* Sandy Loam, 8- to 12-inch precipitation zone

## **143—Shano loam, 1 to 12 percent slopes**

### **Composition**

Shano soil and similar inclusions—75 percent

Contrasting inclusions—25 percent

### **Setting**

*Position on landscape:* Alluvial plains, basalt plains

*Elevation:* About 3,500 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 120 days

### **Characteristics of the Shano Soil**

#### *Typical profile:*

0 to 15 inches—pale brown loam

15 to 26 inches—white silt loam

26 to 42 inches—white very fine sandy loam

42 to 60 inches—pale brown fine sandy loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Elijah, Purdam, Davey, Scism, Scoon, Truesdale, Jacquith, and Minidoka soils; soils that have slopes of more than 12 percent

### **Use and Management**

*Major uses:* Rangeland, irrigated cropland

*Major management factors:* Hazard of water erosion, hazard of wind erosion, low precipitation

### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation.
- Plants that can tolerate droughtiness are suitable for seeding.

### **Cropland**

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- The best suited irrigation method is a sprinkler system.
- The risk of erosion is increased if row crops are grown.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- Farming across the slope, keeping tillage at a minimum, maintaining a cloddy surface, maintaining crop residue on or near the surface, and maintaining tilth and the content of organic matter reduce the hazards of wind erosion and water erosion.

### ***Interpretive Groups***

*Land capability classification:* IVe, irrigated and nonirrigated

*Range site:* Loamy, 8- to 10-inch precipitation zone

## **144—Shano-Owsel complex, 0 to 12 percent slopes**

### ***Composition***

Shano soil and similar inclusions—40 percent

Owsel soil and similar inclusions—35 percent

Contrasting inclusions—25 percent

### ***Setting***

*Position on landscape:* Alluvial plains, basalt plains

*Elevation:* About 3,500 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 120 days

### ***Characteristics of the Shano Soil***

*Typical profile:*

0 to 15 inches—pale brown silt loam

15 to 26 inches—white silt loam

26 to 42 inches—white very fine sandy loam

42 to 60 inches—pale brown fine sandy loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### ***Characteristics of the Owsel Soil***

*Typical profile:*

0 to 4 inches—brown loam

4 to 18 inches—brown silt loam and silty clay loam

18 to 36 inches—pale brown and light yellowish brown loam

36 to 60 inches—pale brown fine sandy loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### ***Contrasting Inclusions***

Elijah, Purdam, Royal, Scism, Scoon, Truesdale, Minidoka, and Greenleaf soils; soils that have slopes of more than 12 percent

### ***Use and Management***

*Major uses:* Rangeland, irrigated cropland

*Major management factors:* Hazard of water erosion, hazard of wind erosion, low precipitation

### ***Rangeland***

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation.
- Plants that can tolerate droughtiness are suitable for seeding.

### ***Cropland***

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- The best suited irrigation method is a sprinkler system.
- The risk of erosion is increased if row crops are grown.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- Farming across the slope, keeping tillage at a minimum, maintaining a cloddy surface, and maintaining crop residue on or near the surface reduce the hazards of wind erosion and water erosion.

### ***Interpretive Groups***

*Land capability classification:* IVe, irrigated; VIe, nonirrigated

*Range site:* Loamy, 8- to 10-inch precipitation zone

**145—Shano-Truesdale fine sandy loams, 0 to 12 percent slopes****Composition**

Shano soil and similar inclusions—50 percent

Truesdale soil and similar inclusions—40 percent

Contrasting inclusions—10 percent

**Setting**

*Position on landscape:* Alluvial plains, basalt plains

*Elevation:* About 3,400 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 120 days

**Characteristics of the Shano Soil****Typical profile:**

0 to 15 inches—pale brown fine sandy loam

15 to 26 inches—white silt loam

26 to 42 inches—white very fine sandy loam

42 to 60 inches—pale brown fine sandy loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

**Characteristics of the Truesdale Soil****Typical profile:**

0 to 27 inches—pale brown fine sandy loam

27 to 60 inches—very pale brown, weakly cemented  
hardpan

*Depth class:* Moderately deep

*Depth to hardpan (rippable):* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid

*Available water capacity:* Low

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

**Contrasting Inclusions**

Buko, Davey, and Royal soils; soils that have slopes of more than 12 percent

**Use and Management**

*Major uses:* Rangeland, irrigated cropland

*Major management factors:* Available water capacity,

depth to the hardpan, hazard of water erosion,  
hazard of wind erosion, low precipitation

**Rangeland**

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Indian ricegrass, Thurber  
needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation.
- Plants that can tolerate droughtiness are suitable for seeding.
- Installation of pipelines is limited by depth to the hardpan in some areas.

**Cropland**

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- The best suited irrigation method is a sprinkler system.
- The risk of erosion is increased if row crops are grown.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- Farming across the slope, keeping tillage at a minimum, maintaining a cloddy surface, and maintaining crop residue on or near the surface reduce the hazards of wind erosion and water erosion.

**Interpretive Groups**

*Land capability classification:* IVE, irrigated; Vle,  
nonirrigated

*Range site:* Sandy Loam, 8- to 12-inch precipitation  
zone

**146—Shoofly loam, 0 to 4 percent slopes****Composition**

Shoofly soil and similar inclusions—75 percent

Contrasting inclusions—25 percent

### **Setting**

*Position on landscape:* Fan terraces

*Elevation:* About 3,200 feet

*Average annual precipitation:* About 8 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 130 days

### **Characteristics of the Shoofly Soil**

*Percent of rock fragments on the surface:* 15 to 35 percent pebbles

*Typical profile:*

0 to 3 inches—pale brown loam (when mixed)

3 to 12 inches—light yellowish brown gravelly clay loam

12 to 15 inches—very pale brown, strongly cemented hardpan

15 to 34 inches—light gray, highly fractured, cemented hardpan

34 to 60 inches—variegated extremely gravelly coarse sand

*Depth class:* Shallow

*Depth to hardpan (not rippable):* 9 to 14 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Low

*Potential rooting depth:* 10 to 20 inches

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

McKeeth, Ornea, and Dors soils; soils that have slopes of more than 4 percent

### **Use and Management**

*Major use:* Rangeland

*Major management factors:* Available water capacity, depth to the hardpan, rooting depth, low precipitation

*Dominant vegetation in potential natural plant community:*

Shadscale, bud sagebrush, Indian ricegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation, the low available water capacity, and the shallow rooting depth.
- The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation and the low available water capacity.
- Installation of pipelines and fences is limited by depth to the hardpan.

### **Interpretive Groups**

*Land capability classification:* Vlls, nonirrigated

*Range site:* Calcareous Loam, 7- to 10-inch precipitation zone

## **147—Shoofly-Ornea complex, 2 to 12 percent slopes**

### **Composition**

Shoofly soil and similar inclusions—45 percent

Ornea soil and similar inclusions—30 percent

Contrasting inclusions—25 percent

### **Setting**

*Position on landscape:* Dissected fan terraces

*Elevation:* About 3,200 feet

*Average annual precipitation:* About 8 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 130 days

### **Characteristics of the Shoofly Soil**

*Position on landscape:* Fan terraces

*Slope:* 2 to 8 percent

*Percent of rock fragments on the surface:* 5 to 15 percent pebbles

*Typical profile:*

0 to 3 inches—pale brown loam (when mixed)

3 to 12 inches—light yellowish brown gravelly clay loam

12 to 15 inches—very pale brown, strongly cemented hardpan

15 to 34 inches—light gray, highly fractured, cemented hardpan

34 to 60 inches—variegated extremely gravelly coarse sand

*Depth class:* Shallow

*Depth to hardpan (not rippable):* 9 to 14 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Low

*Potential rooting depth:* 10 to 20 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Characteristics of the Ornea Soil**

*Position on landscape:* Side slopes

*Slope:* 2 to 12 percent

*Percent of rock fragments on the surface:* 15 to 30 percent pebbles

*Typical profile:*

- 0 to 9 inches—very pale brown gravelly loam
- 9 to 12 inches—very pale brown gravelly clay loam
- 12 to 26 inches—very pale brown very gravelly coarse sand
- 26 to 60 inches—variegated extremely gravelly coarse sand

*Depth class:* Very deep

*Depth to very gravelly material:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow in the upper 10 to 20 inches; very rapid below this depth

*Available water capacity:* Low

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### ***Contrasting Inclusions***

McKeeth, Loray, Dors, Royal, Buko, and Abgese soils; soils that have slopes of more than 12 percent

### ***Use and Management***

*Major use:* Rangeland

*Major management factors:* Available water capacity, depth to the hardpan, hazard of water erosion, depth to very gravelly or extremely gravelly material, rooting depth, low precipitation

*Dominant vegetation in potential natural plant community:* Shadscale, bud sagebrush, Indian ricegrass

*General management considerations:*

- The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation, the low available water capacity, and the restricted rooting depth.
- Installation of pipelines and fences is limited by depth to the hardpan.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.

### ***Interpretive Groups***

*Land capability classification:* VIIe, nonirrigated

*Range site:* Calcareous Loam, 7- to 10-inch precipitation zone

## **148—Sidlake-Bruncan complex, 1 to 8 percent slopes**

### ***Composition***

Sidlake soil and similar inclusions—40 percent

Bruncan soil and similar inclusions—40 percent  
Contrasting inclusions—20 percent

### ***Setting***

*Position on landscape:* Basalt plains, terraces

*Elevation:* About 3,800 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 49 degrees F

*Frost-free season:* About 120 days

### ***Characteristics of the Sidlake Soil***

#### *Typical profile:*

- 0 to 4 inches—pale brown loam
- 4 to 8 inches—light yellowish brown loam
- 8 to 16 inches—light yellowish brown clay loam
- 16 to 19 inches—very pale brown gravelly loam
- 19 to 23 inches—very pale brown very gravelly sandy clay loam
- 23 to 26 inches—highly weathered, fractured bedrock
- 26 inches—unweathered bedrock

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Low

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### ***Characteristics of the Bruncan Soil***

#### *Typical profile:*

- 0 to 12 inches—very pale brown and light yellowish brown gravelly loam
- 12 to 15 inches—light gray very gravelly loam
- 15 to 27 inches—pinkish white, strongly cemented hardpan
- 27 inches—unweathered bedrock

*Depth class:* Shallow

*Depth to hardpan (not rippable):* 11 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Low

*Potential rooting depth:* 10 to 20 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### ***Contrasting Inclusions***

Soils that are less than 20 inches deep to bedrock and are more than 35 percent rock fragments; soils that are 20 to 40 inches deep to bedrock and are silt loam throughout; soils that have slopes of more

than 8 percent; soils that are more than 40 inches deep to bedrock

### ***Use and Management***

*Major use:* Rangeland

*Major management factors:* Available water capacity, depth to bedrock, depth to the hardpan, hazard of water erosion, rooting depth, low precipitation

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation and the restricted rooting depth.
- Seeding is limited by low precipitation and the depth to bedrock.
- The suitability of this map unit for range seeding is poor.
- Installation of pipelines is limited by the depth to bedrock or to the hardpan in some areas.

### ***Interpretive Groups***

*Land capability classification:* VIe, nonirrigated

*Range site:* Loamy, 8- to 10-inch precipitation zone

## **149—Simonton loam, 2 to 12 percent slopes**

### ***Composition***

Simonton soil and similar inclusions—75 percent

Contrasting inclusions—25 percent

### ***Setting***

*Position on landscape:* Foothills, terraces, basalt plains

*Elevation:* About 5,200 feet

*Average annual precipitation:* About 16 inches

*Average annual air temperature:* About 43 degrees F

*Frost-free season:* About 70 days

### ***Characteristics of the Simonton Soil***

*Typical profile:*

0 to 4 inches—brown loam

4 to 36 inches—brown, light yellowish brown, and very pale brown clay loam

36 to 42 inches—very pale brown sandy clay loam

42 to 60 inches—very pale brown sandy loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### ***Contrasting Inclusions***

Elkcreek, Harahill, and Brinegar soils; Rock outcrop; soils that have slopes of more than 12 percent; soils that are somewhat poorly drained; soils that do not have a dark upper layer

### ***Use and Management***

*Major uses:* Rangeland, pasture, hayland, irrigated cropland

*Major management factor:* Hazard of water erosion

### ***Rangeland***

*Dominant vegetation in potential natural plant community:*

Mountain big sagebrush, Idaho fescue, bluebunch wheatgrass

*General management considerations:*

- Because the cold soil temperatures limit plant growth, grazing should be delayed until the soil has warmed and the forage plants have achieved sufficient growth.
- The suitability of this map unit for range seeding is good.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.

### ***Cropland***

*General management considerations:*

- The short growing season limits the choice of suitable crops.
- The best suited irrigation method is a sprinkler system.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Farming across the slope, keeping tillage at a minimum, maintaining a cloddy surface, maintaining crop residue on or near the surface, and maintaining tilth and the content of organic matter reduce the risk of water erosion.

### ***Hayland and pasture***

*General management considerations:*

- In favorable years the vegetation can be cut for hay.
- Supplemental irrigation is needed in years of limited precipitation.
- Regulating the applications of irrigation water helps to control runoff and erosion.

### ***Interpretive Groups***

*Land capability classification:* IVe, irrigated; IIIe, nonirrigated

*Range site:* Loamy, 12- to 16-inch precipitation zone

## 150—Simonton-Bauscher loams, 2 to 20 percent slopes

### **Composition**

Simonton soil and similar inclusions—45 percent  
Bauscher soil and similar inclusions—30 percent  
Contrasting inclusions—25 percent

### **Setting**

*Position on landscape:* Foothills, granitic hills, alluvial terraces

*Elevation:* About 5,200 feet

*Average annual precipitation:* About 16 inches

*Average annual air temperature:* About 43 degrees F

*Frost-free season:* About 70 days

### **Characteristics of the Simonton Soil**

*Typical profile:*

0 to 4 inches—brown loam

4 to 36 inches—brown, light yellowish brown, and very pale brown clay loam

36 to 42 inches—very pale brown sandy clay loam

42 to 60 inches—very pale brown sandy loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Characteristics of the Bauscher Soil**

*Typical profile:*

0 to 29 inches—brown loam

29 to 49 inches—brown and light yellowish brown clay loam

49 to 60 inches—very pale brown sandy loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Demast, Elkcreek, Harahill, Brinegar, and Roanhide

soils; Rock outcrop; soils that have slopes of more than 20 percent; soils that are somewhat poorly drained

### **Use and Management**

*Major uses:* Rangeland, pasture, hayland

*Major management factors:* Hazard of water erosion, slope

### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Mountain big sagebrush, Idaho fescue, bluebunch wheatgrass

*General management considerations:*

- Because the cold soil temperatures limit plant growth, grazing should be delayed until the soil has warmed and the forage plants have achieved sufficient growth.
- The suitability of this map unit for range seeding is good. Seeding is limited by the hazard of water erosion in the steeper areas.

### **Hayland and pasture**

*General management considerations:*

- In favorable years the vegetation can be cut for hay.
- Supplemental irrigation is needed in years of limited precipitation.
- Regulating the applications of irrigation water helps to control runoff and erosion.

### **Interpretive Groups**

*Land capability classification:* IVe, nonirrigated

*Range site:* Loamy, 12- to 16-inch precipitation zone

## 151—Simonton-Elkcreek complex, 10 to 50 percent slopes

### **Composition**

Simonton soil and similar inclusions—45 percent  
Elkcreek soil and similar inclusions—30 percent  
Contrasting inclusions—25 percent

### **Setting**

*Position on landscape:* Foothills, mountains

*Elevation:* About 5,300 feet

*Average annual precipitation:* About 16 inches

*Average annual air temperature:* About 43 degrees F

*Frost-free season:* About 70 days

### **Characteristics of the Simonton Soil**

*Position on landscape:* Foot slopes, toe slopes, north-facing side slopes

*Slope:* 10 to 25 percent

*Typical profile:*

- 0 to 4 inches—brown loam
- 4 to 36 inches—brown, light yellowish brown, and very pale brown clay loam
- 36 to 42 inches—very pale brown sandy clay loam
- 42 to 60 inches—very pale brown sandy loam

*Depth class:* Very deep*Drainage class:* Well drained*Permeability:* Moderately slow*Available water capacity:* High*Potential rooting depth:* 60 inches or more*Runoff:* Medium*Hazard of water erosion:* Moderate*Hazard of wind erosion:* Moderate**Characteristics of the Elkcreek Soil***Position on landscape:* Ridges, shoulder slopes, south-facing side slopes*Slope:* 10 to 50 percent*Typical profile:*

- 0 to 4 inches—brown stony loam
- 4 to 10 inches—brown stony clay loam
- 10 to 22 inches—pale brown stony loam
- 22 inches—unweathered bedrock

*Depth class:* Moderately deep*Drainage class:* Well drained*Permeability:* Moderately slow*Available water capacity:* Low*Potential rooting depth:* 20 to 40 inches*Runoff:* Medium or rapid*Hazard of water erosion:* Moderate**Contrasting Inclusions**

Gaib soils near Rock outcrop and on ridgetops; Demast soils that are in concave areas and support aspen; Rock outcrop; soils that have more than 35 percent rock fragments at a depth of 10 to 40 inches; soils that are very stony or extremely stony

**Use and Management***Major use:* Rangeland*Major management factors:* Available water capacity, hazard of water erosion, rooting depth, slope*Dominant vegetation in potential natural plant community:*

Mountain big sagebrush, Idaho fescue, bluebunch wheatgrass

*General management considerations:*

- Because the cold soil temperatures limit plant growth, grazing should be delayed until the soil has warmed and the forage plants have achieved sufficient growth.
- The use of forage by livestock is limited by the slope in some areas.

- The suitability of this map unit for range seeding is poor. Seeding is limited by the slope.
- Seeding the more favorable, less sloping areas of this map unit is difficult because of the pattern in which they occur with the less favorable, more sloping areas.
- Installation of pipelines is limited by the slope and the depth to bedrock in some areas.

**Interpretive Groups***Land capability classification:* Vle, nonirrigated*Range site:* Loamy, 12- to 16-inch precipitation zone**152—Stavelly-Coski-Switchback complex, 10 to 60 percent slopes****Composition**

Stavelly soil and similar inclusions—30 percent

Coski soil and similar inclusions—30 percent

Switchback soil and similar inclusions—20 percent

Contrasting inclusions—20 percent

**Setting***Position on landscape:* Mountains*Elevation:* About 6,000 feet*Average annual precipitation:* About 27 inches*Average annual air temperature:* About 41 degrees F*Frost-free season:* About 55 days**Characteristics of the Stavelly Soil***Position on landscape:* Lower lying side slopes and foot slopes*Slope:* 10 to 60 percent*Thickness of organic mat on the surface:* 2 inches*Typical profile:*

- 0 to 4 inches—dark grayish brown coarse sandy loam
- 4 to 17 inches—pale brown coarse sandy loam
- 17 to 28 inches—very pale brown gravelly coarse sandy loam
- 28 to 34 inches—very pale brown gravelly loamy coarse sand
- 34 to 60 inches—variegated very gravelly coarse sand

*Depth class:* Very deep*Drainage class:* Well drained*Permeability:* Moderately rapid*Available water capacity:* Moderate*Potential rooting depth:* 60 inches or more*Runoff:* Medium or rapid*Hazard of water erosion:* Moderate



### **Characteristics of the Coski Soil**

*Position on landscape:* North-facing side slopes

*Slope:* 30 to 60 percent

*Thickness of organic mat on the surface:* 1 inch

*Typical profile:*

0 to 11 inches—grayish brown gravelly coarse sandy loam

11 to 42 inches—pale brown and very pale brown gravelly coarse sandy loam

42 inches—unweathered bedrock

*Depth class:* Deep

*Drainage class:* Well drained

*Permeability:* Moderately rapid

*Available water capacity:* Moderate

*Potential rooting depth:* 40 to 60 inches

*Runoff:* Medium or rapid

*Hazard of water erosion:* Moderate

### **Characteristics of the Switchback Soil**

*Position on landscape:* Higher lying, south- and west-facing side slopes and shoulder slopes

*Slope:* 20 to 60 percent

*Typical profile:*

0 to 11 inches—light brownish gray and pale brown sandy loam

11 to 37 inches—very pale brown gravelly sandy loam

37 inches—weathered bedrock

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Moderate

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Medium or rapid

*Hazard of water erosion:* Severe

### **Contrasting Inclusions**

Grousecreek soils; Broad Canyon soils on steep, north-facing slopes; Quartzburg soils on steep, south-facing slopes; shallow soils on ridges

### **Use and Management**

*Major uses:* Woodland, wildlife habitat, grazing land

*Major management factors:* Available water capacity, hazard of water erosion, slope, warmer soil temperatures on south- and west-facing slopes

#### **Woodland**

*Dominant vegetation in potential natural plant community:*

Stavely soil—Douglas fir, mountain snowberry;

Coski soil—Douglas fir, elk sedge, heartleaf arnica;

Switchback soil—ponderosa pine, chokecherry

*Mean site index for Douglas fir:* Stavely soil—77; Coski soil—76

*Estimated average annual production per acre of*

*Douglas fir (commercial):* Stavely soil—4,590 cubic feet from a stand of 40-year-old trees 6 inches or more in diameter or 30,100 board feet (Scribner rule) from a stand of 80-year-old trees 11.6 inches or more in diameter; Coski soil—4,470 cubic feet from a stand of 40-year-old trees 6 inches or more in diameter or 29,780 board feet (Scribner rule) from a stand of 80-year-old trees 11.6 inches or more in diameter

*Mean site index for ponderosa pine on the Switchback soil:* 70

*Estimated average annual production per acre of*

*ponderosa pine (commercial):* 4,100 cubic feet from a stand of 40-year-old trees 6 inches or more in diameter or 26,000 board feet (Scribner rule) from a stand of 80-year-old trees 11.6 inches or more in diameter

*General management considerations:*

- Wheeled and tracked equipment can be used in the more gently sloping areas, but cable yarding generally is safer and results in less disturbance of the surface. Highlead logging or other cable logging methods are suited to the steeper areas.
- Constructing roads at midslope results in large cuts and fills and increases the risk of erosion.
- Cuts occasionally slump when saturated.
- Adequately designed road drainage systems reduce the risk of erosion.
- Steep yarding paths, skid trails, and firebreaks are subject to rilling and gullyng. A plant cover or water bars are needed.
- The waste material from roadbuilding can damage vegetation. It is also a potential source of sedimentation.
- High soil temperatures and a low content of soil moisture during the growing season result in a high seedling mortality rate, especially on south- and southwest-facing slopes.
- Carefully managing reforestation and regeneration helps to control competition from less desirable understory plants and provides shade for seedlings.
- Adequate site preparation controls initial plant competition, and spraying controls subsequent growth.
- Trees suitable for planting include Douglas fir and ponderosa pine.
- Avoiding excessive disturbance of the soil, seeding roads, cuts, and landings, and installing water bars and culverts reduce the risk of erosion.

- Selecting suitable species helps to ensure the establishment and survival of seedlings.
- Maintaining some of the larger trees in the stand provides shade for seedlings.
- Thinning before trees reach commercial size and selectively cutting mature trees improve the stands.

### **Grazable understory**

*Common forest understory plants:* Stavelly soil—mountain snowberry, serviceberry, Oregon grape, Fendler meadowrue, elk sedge, pine reedgrass; Coski soil—mountain snowberry, serviceberry, Fendler meadowrue, heartleaf arnica, sweet cicely, elk sedge, pine reedgrass, Idaho fescue; Switchback soil—chokecherry, antelope bitterbrush, Oregon grape, arrowleaf balsamroot, elk sedge

*Potential production of air-dry vegetation per acre:*

Stavelly soil—500 to 1,000 pounds; Coski and Switchback soils—400 to 800 pounds

*General management considerations:*

- The overstory on the Switchback soil generally is open, which allows enough light to reach the ground for good growth of understory plants.
- When the timber stand reaches potential growth (more than 70 percent canopy), the understory is sparse and has little value as forage. When the overstory is less dense, the understory provides good forage.
- Recently burned or logged areas can be grazed until competition from trees eliminates the forage.
- Seeding disturbed areas to suitable plants increases forage production.
- Grazing should be deferred until tree seedlings are well established.

### **Interpretive Groups**

*Land capability classification:* V1e, nonirrigated

## **153—Switchback-Grousecreek complex, 20 to 60 percent slopes**

### **Composition**

Switchback soil and similar inclusions—55 percent  
Grousecreek soil and similar inclusions—25 percent  
Contrasting inclusions—20 percent

### **Setting**

*Position on landscape:* Mountainsides

*Elevation:* About 5,800 feet

*Average annual precipitation:* About 26 inches

*Average annual air temperature:* About 41 degrees F

*Frost-free season:* About 60 days

### **Characteristics of the Switchback Soil**

*Position on landscape:* Shoulder slopes, south- and west-facing side slopes

*Slope:* 30 to 60 percent

*Typical profile:*

0 to 11 inches—light brownish gray and pale brown sandy loam

11 to 37 inches—very pale brown gravelly sandy loam

37 inches—weathered bedrock

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Moderate

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Medium or rapid

*Hazard of water erosion:* Severe

### **Characteristics of the Grousecreek Soil**

*Position on landscape:* North- and east-facing side slopes

*Slope:* 20 to 50 percent

*Thickness of organic mat on the surface:* 1 inch

*Typical profile:*

0 to 12 inches—grayish brown gravelly sandy loam

12 to 32 inches—very pale brown very gravelly sandy loam

32 to 50 inches—very pale brown extremely gravelly loamy sand

50 inches—unweathered bedrock

*Depth class:* Deep

*Drainage class:* Well drained

*Permeability:* Moderately rapid

*Available water capacity:* Low

*Potential rooting depth:* 40 to 60 inches

*Runoff:* Medium or rapid

*Hazard of water erosion:* Moderate

### **Contrasting Inclusions**

Stavelly soils; Broad Canyon and Graylock soils on steep, north-facing slopes; Quartzburg soils on steep, south-facing slopes; Rock outcrop; shallow soils on ridges

### **Use and Management**

*Major uses:* Woodland, wildlife habitat, grazing land

*Major management factors:* Available water capacity, hazard of water erosion, slope

### **Woodland**

*Dominant vegetation in potential natural plant community:*

Switchback soil—ponderosa pine, antelope

bitterbrush, bluebunch wheatgrass; Grousecreek soil—Douglas fir, chokecherry

*Mean site index for ponderosa pine on the Switchback soil: 70*

*Estimated average annual production per acre of ponderosa pine (commercial):* 4,100 cubic feet from a stand of 40-year-old trees 6 inches or more in diameter or 26,000 board feet (Scribner rule) from a stand of 80-year-old trees 11.6 inches or more in diameter

*Mean site index for Douglas fir on the Grousecreek soil: 65*

*Estimated average annual production per acre of Douglas fir (commercial):* 3,400 cubic feet from a stand of 40-year-old trees 6 inches or more in diameter or 18,500 board feet (Scribner rule) from a stand of 80-year-old trees 11.6 inches or more in diameter

*General management considerations:*

- Wheeled and tracked equipment can be used in the more gently sloping areas, but cable yarding generally is safer and results in less disturbance of the surface. Highlead logging or other cable logging methods are suited to the steeper areas.
- Constructing roads at midslope results in large cuts and fills and increases the risk of erosion.
- Cuts occasionally slump when saturated.
- Adequately designed road drainage systems reduce the risk of erosion.
- Steep yarding paths, skid trails, and firebreaks are subject to rilling and gullyng. A plant cover or water bars are needed.
- The waste material from roadbuilding can damage vegetation. It is also a potential source of sedimentation.
- The high soil temperatures and low content of soil moisture during the growing season result in a high seedling mortality rate, especially on south- and southwest-facing slopes.
- Carefully managing reforestation reduces competition from less desirable understory plants.
- Adequate site preparation controls initial plant competition, and spraying controls subsequent growth.
- Trees suitable for planting include ponderosa pine and Douglas fir.
- Avoiding excessive disturbance of the soil, seeding roads, cuts, and landings, and installing water bars and culverts reduce the risk of erosion.
- Selecting suitable species helps to ensure the establishment and survival of seedlings.
- Maintaining some of the larger trees in the stand provides shade for seedlings.

- Thinning before trees reach commercial size and selectively cutting mature trees improve the stands.

#### **Grazable understory**

*Common forest understory plants:* Switchback soil—antelope bitterbrush, mountain snowberry, Oregongrape, chokecherry, arrowleaf balsamroot, bluebunch wheatgrass, elk sedge; Grousecreek soil—chokecherry, Oregongrape, mountain snowberry, Fendler meadowrue, heartleaf arnica, elk sedge

*Potential production of air-dry vegetation per acre:*

Switchback soil—400 to 800 pounds; Grousecreek soil—500 to 1,000 pounds

*General management considerations:*

- The overstory on the Switchback soil generally is open, which allows enough light to reach the ground for good growth of understory plants.
- If trees and shrubs are managed to create open areas, a good stand of plants suitable for use as forage can be produced.
- Recently burned or logged areas can be grazed until competition from trees eliminates the forage.
- Seeding disturbed areas to suitable plants increases forage production.
- Grazing should be deferred until tree seedlings are well established.

#### **Interpretive Groups**

*Land capability classification:* VIIe, nonirrigated

### **154—Timmerman loamy sand, 2 to 20 percent slopes, extremely bouldery**

#### **Composition**

Timmerman soil and similar inclusions—75 percent

Contrasting inclusions—25 percent

#### **Setting**

*Position on landscape:* Fan terraces

*Elevation:* About 2,800 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 51 degrees F

*Frost-free season:* About 135 days

#### **Characteristics of the Timmerman Soil**

*Percent of rock fragments on the surface:* 15 to 30 percent boulders

*Typical profile:*

0 to 7 inches—pale brown extremely bouldery loamy sand

7 to 16 inches—light yellowish brown bouldery sandy loam

16 to 30 inches—very pale brown bouldery loamy coarse sand

30 to 60 inches—variegated bouldery coarse sand

*Depth class:* Very deep

*Drainage class:* Somewhat excessively drained

*Permeability:* Moderately rapid

*Available water capacity:* Low

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Severe

### **Contrasting Inclusions**

Royal, Quincy, Lankbush, and Buko soils; soils that have slopes of more than 20 percent; soils that are not bouldery

### **Use and Management**

*Major uses:* Rangeland, pasture

*Major management factors:* Available water capacity, boulders on the surface and in the soil, hazard of water erosion, hazard of wind erosion, risk of seepage, slope

### **Rangeland**

*Dominant vegetation in potential natural plant community:*  
Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by the low available water capacity and the content of boulders.
- The suitability of this map unit for range seeding is poor. Seeding is limited by the low available water capacity and the content of boulders.
- The use of equipment is limited by the slope and the content of boulders.
- Installation of pipelines and fences is limited by the content of boulders.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.

### **Hayland and pasture**

*General management considerations:*

- The best suited irrigation method is a sprinkler system.
- Regulating the applications of irrigation water helps to control runoff and erosion and to avoid overirrigating and the leaching of plant nutrients.

### **Interpretive Groups**

*Land capability classification:* VIIs, nonirrigated

*Range site:* Sandy Loam, 8- to 12-inch precipitation zone

## **155—Timmerman sandy loam, 0 to 4 percent slopes**

### **Composition**

Timmerman soil and similar inclusions—90 percent

Contrasting inclusions—10 percent

### **Setting**

*Position on landscape:* Fan terraces

*Elevation:* About 2,700 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 51 degrees F

*Frost-free season:* About 135 days

### **Characteristics of the Timmerman Soil**

*Typical profile:*

0 to 6 inches—very pale brown and brown sandy loam (when mixed)

6 to 17 inches—yellowish brown sandy loam

17 to 31 inches—variegated loamy coarse sand

31 to 60 inches—variegated coarse sand

*Depth class:* Very deep

*Drainage class:* Somewhat excessively drained

*Permeability:* Moderately rapid

*Available water capacity:* Moderate

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Lankbush soils; soils that have 1 to 3 percent of the surface covered with stones; soils that have slopes of more than 4 percent; soils that are 10 to 20 percent boulders between depths of 20 and 60 inches

### **Use and Management**

*Major uses:* Irrigated cropland, homesites in a few areas

*Minor use:* Livestock grazing in a few small areas (less than 15 percent of the map unit) that support native vegetation

*Major management factors:* Available water capacity, hazard of wind erosion, risk of seepage

### **Cropland**

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.

- Suitable irrigation methods are sprinkler, furrow, and corrugation systems.
- Leveling is needed in sloping areas for efficient application and removal of irrigation water.
- Surface drains are needed to remove tailwater if surface irrigation is used.
- Regulating the applications of irrigation water helps to avoid overirrigating and the leaching of plant nutrients.
- Maintaining crop residue on the surface, planting field windbreaks, keeping tillage at a minimum, and keeping the surface of the soil rough reduce the hazard of wind erosion.

### **Building site development**

#### *General management considerations:*

- Cuts are not stable and therefore are subject to slumping.
- This map unit is a good source of roadfill.
- This map unit is limited as a site for septic tank absorption fields because of the moderately rapid permeability, which causes poor filtration of the effluent and can result in pollution of the water supply.

### **Interpretive Groups**

*Land capability classification:* IIIs, irrigated

## **156—Timmerman sandy loam, 4 to 12 percent slopes**

### **Composition**

Timmerman soil and similar inclusions—85 percent  
Contrasting inclusions—15 percent

### **Setting**

*Position on landscape:* Fan terraces

*Elevation:* About 2,700 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 51 degrees F

*Frost-free season:* About 135 days

### **Characteristics of the Timmerman Soil**

#### *Typical profile:*

- 0 to 6 inches—very pale brown and brown sandy loam (when mixed)
- 6 to 17 inches—yellowish brown sandy loam
- 17 to 31 inches—variegated loamy coarse sand
- 31 to 60 inches—variegated coarse sand

*Depth class:* Very deep

*Drainage class:* Somewhat excessively drained

*Permeability:* Moderately rapid

*Available water capacity:* Moderate

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Quincy and Lankbush soils; soils that have 1 to 10 percent of the surface covered with stones; soils that have slopes of less than 4 percent or more than 12 percent; soils that are 5 to 25 percent boulders throughout

### **Use and Management**

*Major uses:* Rangeland, irrigated cropland

*Major management factors:* Available water capacity, hazard of water erosion, hazard of wind erosion, risk of seepage, low precipitation

### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by the sandy loam texture of the upper layer.
- Plants that can tolerate droughtiness are suitable for seeding.
- Seeding burned or disturbed areas controls blowing and drifting sand.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.

### **Cropland**

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- The best suited irrigation method is a sprinkler system.
- Regulating the applications of irrigation water helps to control runoff and erosion and to avoid overirrigating and the leaching of plant nutrients.
- Farming across the slope, keeping tillage at a minimum, maintaining a cloddy surface, and planting field windbreaks reduce the hazards of wind erosion and water erosion.

### **Interpretive Groups**

*Land capability classification:* IVe, irrigated; VIe, nonirrigated

*Range site:* Sandy Loam, 8- to 12-inch precipitation zone

## 157—Trevino-Garbutt-Weso complex, 2 to 8 percent slopes

### **Composition**

Trevino soil and similar inclusions—40 percent  
Garbutt soil and similar inclusions—20 percent  
Weso soil and similar inclusions—20 percent  
Contrasting inclusions—20 percent

### **Setting**

*Position on landscape:* Basalt plains  
*Elevation:* About 3,000 feet  
*Average annual precipitation:* About 8 inches  
*Average annual air temperature:* About 52 degrees F  
*Frost-free season:* About 130 days

### **Characteristics of the Trevino Soil**

*Percent of rock fragments on the surface:* About 1 to 3 percent stones

#### *Typical profile:*

0 to 5 inches—pale brown stony loam  
5 to 12 inches—pale brown loam  
12 to 18 inches—very pale brown fine sandy loam  
18 inches—fractured bedrock

*Depth class:* Shallow

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Low

*Potential rooting depth:* 10 to 20 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Characteristics of the Garbutt Soil**

#### *Typical profile:*

0 to 5 inches—light brownish gray silt loam  
5 to 60 inches—light gray very fine sandy loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Characteristics of the Weso Soil**

#### *Typical profile:*

0 to 5 inches—pale brown loam  
5 to 19 inches—very pale brown loam  
19 to 24 inches—very pale brown fine sandy loam  
with pockets of cemented material (hardpan)

24 to 30 inches—very pale brown loam

30 to 60 inches—light gray sandy loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Royal, Jenness, and Mazuma soils in drainageways;  
Minidoka, Power, and Purdam soils; Rock outcrop

### **Use and Management**

*Major use:* Rangeland

*Major management factors:* Available water capacity, hazard of water erosion, hazard of wind erosion, stones on the surface, depth to bedrock, rooting depth, low precipitation

#### *Dominant vegetation in potential natural plant community:*

Trevino soil—Wyoming big sagebrush, Thurber needlegrass; Garbutt and Weso soils—shadscale, bud sagebrush, Indian ricegrass, Thurber needlegrass

#### *General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is poor. Seeding is limited by the low available water capacity, low precipitation, and the stones on the surface in some areas.
- Installation of pipelines and fences is limited by the depth to bedrock in some areas.
- The use of equipment is limited by the stones on the surface in some areas.
- Loss of the upper layer results in a severe decrease in the potential of the soil to produce forage.

### **Interpretive Groups**

*Land capability classification:* VIIe, nonirrigated

*Range site:* Trevino soil—Loamy, 8- to 10-inch precipitation zone; Garbutt and Weso soils—Calcareous Loam, 7- to 10-inch precipitation zone

## 158—Trevino-Minidoka complex, 8 to 30 percent slopes

### **Composition**

Trevino soil and similar inclusions—50 percent

Minidoka soil and similar inclusions—25 percent  
 Contrasting inclusions—25 percent

### **Setting**

*Position on landscape:* Basalt plains  
*Elevation:* About 3,400 feet  
*Average annual precipitation:* About 9 inches  
*Average annual air temperature:* About 51 degrees F  
*Frost-free season:* About 130 days

### **Characteristics of the Trevino Soil**

*Position on landscape:* Near areas of Rock outcrop, ridges  
*Slope:* 8 to 30 percent  
*Percent of rock fragments on the surface:* About 10 percent stones and cobbles  
*Typical profile:*  
     0 to 5 inches—pale brown very stony loam  
     5 to 12 inches—pale brown loam  
     12 to 18 inches—very pale brown fine sandy loam  
     18 inches—unweathered bedrock  
*Depth class:* Shallow  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* Low  
*Potential rooting depth:* 10 to 20 inches  
*Runoff:* Medium or rapid  
*Hazard of water erosion:* Moderate  
*Hazard of wind erosion:* Moderate

### **Characteristics of the Minidoka Soil**

*Position on landscape:* Side slopes  
*Slope:* 8 to 12 percent  
*Typical profile:*  
     0 to 17 inches—brown silt loam  
     17 to 27 inches—white silt loam  
     27 to 43 inches—white, strongly cemented hardpan  
     43 to 60 inches—alternate layers of silt loam and strongly cemented material (hardpan)  
*Depth class:* Moderately deep  
*Depth to hardpan (not rippable):* 20 to 40 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* Moderate  
*Potential rooting depth:* 20 to 40 inches  
*Runoff:* Medium  
*Hazard of water erosion:* Moderate  
*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Minveno soils in convex areas; Vining soils on side slopes; Royal soils on toe slopes and in drainageways; soils that have slopes of less than 8

percent; Rock outcrop; Rubble land

### **Use and Management**

*Major use:* Rangeland  
*Major management factors:* Available water capacity, stones on the surface and in the soil, depth to bedrock, depth to the hardpan, hazard of water erosion, hazard of wind erosion, low precipitation  
*Dominant vegetation in potential natural plant community:* Wyoming big sagebrush, Thurber needlegrass  
*General management considerations:*  
 • Forage production is limited mainly by low precipitation and the restricted rooting depth.  
 • The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation, stoniness in some areas, and shallowness in some areas.  
 • The use of equipment is limited by the cobbles and stones on the surface.  
 • Installation of pipelines and fences is limited by the depth to bedrock or to the cemented hardpan.

### **Interpretive Groups**

*Land capability classification:* Vle, nonirrigated  
*Range site:* Loamy, 8- to 10-inch precipitation zone

## **159—Trevino-Rock outcrop complex, 0 to 8 percent slopes**

### **Composition**

Trevino soil and similar inclusions—50 percent  
 Rock outcrop—30 percent  
 Contrasting inclusions—20 percent

### **Setting**

*Position on landscape:* Basalt plains  
*Elevation:* About 3,000 feet  
*Average annual precipitation:* About 9 inches  
*Average annual air temperature:* About 52 degrees F  
*Frost-free season:* About 130 days

### **Characteristics of the Trevino Soil**

*Percent of rock fragments on the surface:* 1 to 3 percent stones  
*Typical profile:*  
     0 to 5 inches—pale brown stony loam  
     5 to 12 inches—pale brown loam  
     12 to 18 inches—very pale brown fine sandy loam  
     18 inches—unweathered bedrock  
*Depth class:* Shallow  
*Drainage class:* Well drained  
*Permeability:* Moderate

*Available water capacity:* Low  
*Potential rooting depth:* 10 to 20 inches  
*Runoff:* Slow or medium  
*Hazard of water erosion:* Moderate  
*Hazard of wind erosion:* Moderate

### **Characteristics of the Rock Outcrop**

*Kind of material:* Exposed basalt

### **Contrasting Inclusions**

Minidoka, Weso, Garbutt, Minveno, Bahem, and  
 Purdam soils

### **Use and Management**

*Major use:* Rangeland

*Major management factors:* Available water capacity, stones on the surface and in the soil, depth to bedrock, hazard of water erosion, areas of Rock outcrop, rooting depth

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by the restricted rooting depth and low available water capacity.
- The suitability of this map unit for range seeding is fair. Seeding is limited by the low available water capacity and restricted rooting depth.
- Plants that can tolerate droughtiness are suitable for seeding.
- Seeding areas of this map unit is difficult because of the pattern of the areas of Rock outcrop.
- The use of equipment is limited by the stones on the surface.
- Installation of pipelines and fences is limited by the depth to bedrock.
- Loss of the upper layer results in a severe decrease in the potential of the soil to produce forage.

### **Interpretive Groups**

*Land capability classification:* VIe, nonirrigated

*Range site:* Trevino soil—Loamy, 8- to 10-inch precipitation zone

## **160—Trosi-Chilcott-Tenmile gravelly loams, 2 to 20 percent slopes**

### **Composition**

Trosi soil and similar inclusions—30 percent  
 Chilcott soil and similar inclusions—25 percent  
 Tenmile soil and similar inclusions—25 percent  
 Contrasting inclusions—20 percent

### **Setting**

*Position on landscape:* Dissected fan terraces

*Elevation:* About 3,700 feet

*Average annual precipitation:* About 11 inches

*Average annual air temperature:* About 48 degrees F

*Frost-free season:* About 115 days

### **Characteristics of the Trosi Soil**

*Slope:* 2 to 12 percent

*Percent of rock fragments on the surface:* 30 to 50 percent cobbles and pebbles

*Typical profile:*

0 to 3 inches—very pale brown gravelly loam

3 to 6 inches—pale brown very gravelly clay loam

6 to 16 inches—brown very gravelly clay

16 to 28 inches—very pale brown, strongly cemented hardpan

28 to 38 inches—very pale brown extremely gravelly loamy coarse sand

38 to 60 inches—yellow very gravelly loamy sand

*Depth class:* Shallow

*Depth to hardpan (not rippable):* 14 to 20 inches

*Drainage class:* Well drained

*Permeability:* Very slow

*Available water capacity:* Low

*Potential rooting depth:* 14 to 20 inches

*Runoff:* Medium

*Hazard of water erosion:* Moderate

### **Characteristics of the Chilcott Soil**

*Slope:* 2 to 12 percent

*Percent of rock fragments on the surface:* 15 to 25 percent pebbles

*Typical profile:*

0 to 4 inches—pale brown gravelly loam

4 to 7 inches—pale brown gravelly clay loam

7 to 19 inches—brown gravelly clay

19 to 22 inches—brown very gravelly clay

22 to 40 inches—very pale brown, strongly cemented hardpan

*Depth class:* Moderately deep

*Depth to hardpan (not rippable):* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Low

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Characteristics of the Tenmile Soil**

*Slope:* 3 to 20 percent



*Percent of rock fragments on the surface:* 15 to 50 percent cobbles and pebbles

*Typical profile:*

- 0 to 10 inches—brown and pale brown gravelly loam
- 10 to 13 inches—pale brown very gravelly clay loam
- 13 to 20 inches—pale brown very gravelly sandy clay loam
- 20 to 46 inches—brown and reddish yellow extremely gravelly clay
- 46 to 60 inches—variegated very gravelly loamy coarse sand

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Moderate

*Potential rooting depth:* 60 inches or more

*Runoff:* Medium

*Hazard of water erosion:* Moderate

### ***Contrasting Inclusions***

Chardoton and Lanktree soils; soils that have slopes of more than 20 percent

### ***Use and Management***

*Major use:* Rangeland

*Minor use:* Irrigated hayland and pasture in small areas that have slopes of less than 8 percent

*Major management factors:* Available water capacity, gravel and cobbles on the surface and in the soil, hazard of water erosion, slope

### ***Rangeland***

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, bluebunch wheatgrass, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by the low available water capacity and restricted rooting depth.
- The suitability of this map unit for range seeding is fair. Seeding is limited by the low available water capacity, shallowness in some areas, and the slope.
- Plants that can tolerate droughtiness are suitable for seeding.
- Loss of the upper layer results in a severe decrease in the potential of the soil to produce forage.
- Installation of pipelines is limited by depth to the hardpan in some areas and by the content of coarse fragments.
- Construction of fences on the Trosi soil is limited by depth to the hardpan.

### ***Interpretive Groups***

*Land capability classification:* VIe, nonirrigated

*Range site:* Loamy, 10- to 12-inch precipitation zone

## **161—Truesdale fine sandy loam, 0 to 4 percent slopes**

### ***Composition***

Truesdale soil and similar inclusions—80 percent

Contrasting inclusions—20 percent

### ***Setting***

*Position on landscape:* Alluvial plains, basalt plains

*Elevation:* About 2,800 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 52 degrees F

*Frost-free season:* About 135 days

### ***Characteristics of the Truesdale Soil***

*Typical profile:*

0 to 27 inches—pale brown fine sandy loam

27 to 60 inches—very pale brown, weakly cemented hardpan

*Depth class:* Moderately deep

*Depth to hardpan (rippable):* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid

*Available water capacity:* Low

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

### ***Contrasting Inclusions***

Scoon, Buko, Davey, Owsel, and Royal soils; soils that have slopes of more than 4 percent

### ***Use and Management***

*Major uses:* Rangeland, irrigated cropland

*Major management factors:* Available water capacity, depth to the hardpan, hazard of wind erosion, rooting depth, low precipitation

### ***Rangeland***

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.

- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation.
- Plants that can tolerate droughtiness are suitable for seeding.
- Installation of pipelines is limited by depth to the hardpan.

### **Cropland**

#### *General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- The best suited irrigation method is a sprinkler system.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the surface of the soil rough reduce the hazard of wind erosion.

### **Interpretive Groups**

*Land capability classification:* IIe, irrigated; VIIs, nonirrigated

*Range site:* Sandy Loam, 8- to 12-inch precipitation zone

## **162—Truesdale fine sandy loam, 4 to 12 percent slopes**

### **Composition**

Truesdale soil and similar inclusions—75 percent  
Contrasting inclusions—25 percent

### **Setting**

*Position on landscape:* Alluvial plains, basalt plains

*Elevation:* About 2,800 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 52 degrees F

*Frost-free season:* About 135 days

### **Characteristics of the Truesdale Soil**

#### *Typical profile:*

0 to 27 inches—pale brown fine sandy loam

27 to 60 inches—very pale brown, weakly cemented hardpan

*Depth class:* Moderately deep

*Depth to hardpan (rippable):* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid

*Available water capacity:* Low

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Buko, Davey, Owsel, Royal, and Scoon soils; soils that have slopes of less than 4 percent or more than 12 percent

### **Use and Management**

*Major uses:* Rangeland, irrigated cropland

*Major management factors:* Available water capacity, depth to the hardpan, hazard of water erosion, hazard of wind erosion, rooting depth, low precipitation

### **Rangeland**

*Dominant vegetation in potential natural plant community:*  
Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass

#### *General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is fair. Seeding is limited by low precipitation.
- Plants that can tolerate droughtiness are suitable for seeding.
- Installation of pipelines is limited by depth to the hardpan.

### **Cropland**

#### *General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- The best suited irrigation method is a sprinkler system.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Ripping or shattering the pan increases the effective root zone and available water capacity and improves internal drainage.
- Farming across the slope, keeping tillage at a minimum, maintaining a cloddy surface, and maintaining crop residue on or near the surface reduce the hazards of wind erosion and water erosion.

### **Interpretive Groups**

*Land capability classification:* IVe, irrigated; VIe, nonirrigated

*Range site:* Sandy Loam, 8- to 12-inch precipitation zone

**163—Typic Torriorthents, 4 to 20 percent slopes****Composition**

Typic Torriorthents and similar inclusions—75 percent  
Contrasting inclusions—25 percent

**Setting**

*Position on landscape:* Dissected alluvial terraces,  
dissected lacustrine terraces

*Elevation:* About 2,500 feet

*Average annual precipitation:* About 7 inches

*Average annual air temperature:* About 52 degrees F

*Frost-free season:* About 145 days

**Characteristics of the Typic Torriorthents**

*Percent of rock fragments on the surface:* 0 to 35  
percent cobbles and pebbles

*Representative profile:*

- 0 to 6 inches—light brownish gray fine sandy loam
- 6 to 10 inches—light gray very gravelly sandy loam
- 10 to 60 inches—light gray extremely gravelly loamy sand

*Depth class:* Moderately deep to very deep

*Drainage class:* Well drained to excessively drained

*Permeability:* Slow to rapid

*Available water capacity:* Low to high

*Restriction affecting rooting depth:* Consolidated material  
or bedrock at a depth of 20 to more than 60 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

*Salinity:* Nonsaline to moderately saline

**Contrasting Inclusions**

Abgese, Loray, Davey, Royal, and Dors soils; Rock outcrop; Rubble land; soils that have slopes of more than 20 percent; soils that have a hardpan at a depth of 20 to 40 inches; soils that have bedrock at a depth of 10 to 20 inches

**Use and Management**

*Major uses:* Rangeland, irrigated cropland in a few small areas

*Major management factors:* Available water capacity, gravel on the surface and in the soil, depth to bedrock, depth to consolidated material, hazard of water erosion, hazard of wind erosion, permeability, rooting depth, slope, low precipitation

*Dominant vegetation in potential natural plant community:* Shadscale, bud sagebrush, Indian ricegrass

**Interpretive Groups**

*Land capability classification:* IVe, irrigated; VIIe, nonirrigated

*Range site:* Calcareous Loam, 7- to 10-inch precipitation zone

**164—Typic Torriorthents-Badland complex, 20 to 70 percent slopes****Composition**

Typic Torriorthents and similar inclusions—45 percent  
Badland—40 percent  
Contrasting inclusions—15 percent

**Setting**

*Position on landscape:* Dissected lacustrine terraces (fig. 8)

*Elevation:* About 2,900 feet

*Average annual precipitation:* About 7 inches

*Average annual air temperature:* About 51 degrees F

*Frost-free season:* About 135 days

**Characteristics of the Typic Torriorthents**

*Representative profile:*

- 0 to 10 inches—white fine sandy loam
- 10 to 60 inches—white, laminated lake sediments of silty clay loam

*Depth class:* Shallow to deep

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* Low to high

*Restriction affecting rooting depth:* Laminated lake sediments at a depth of 10 to 60 inches

*Runoff:* Rapid

*Hazard of water erosion:* Severe

*Hazard of wind erosion:* Moderate

**Characteristics of the Badland**

*Kind of material:* Mainly silty sediment and some gravelly alluvium

*Position on landscape:* Steep, highly eroded areas

*Plant cover:* None

**Contrasting Inclusions**

Mazuma, Hawsley, Dors, and Ornea soils; soils that have slopes of less than 20 percent

**Use and Management**

*Major use:* Rangeland

*Major management factors:* Available water capacity,



Figure 8.—An area of Typic Torriorthents-Badland complex, 20 to 70 percent slopes. Dominant vegetation is shadscale and bud sagebrush. Note the layers of lake sediments in the foreground.

depth to compact material, hazard of wind erosion,  
hazard of water erosion, slope, low precipitation,  
areas of Badland

*Dominant vegetation in potential natural plant community:*  
Bud sagebrush, shadscale, Indian ricegrass

#### ***Interpretive Groups***

*Land capability classification:* VIIe, nonirrigated

*Range site:* Calcareous Loam, 7- to 10-inch precipitation  
zone

### **165—Typic Torriorthents-Rubble land complex, 20 to 70 percent slopes**

#### ***Composition***

Typic Torriorthents and similar inclusions—60 percent  
Rubble land—20 percent  
Contrasting inclusions—20 percent

#### ***Setting***

*Position on landscape:* Canyonsides

*Elevation:* About 2,600 feet

*Average annual precipitation:* About 7 inches

*Average annual air temperature:* About 52 degrees F

*Frost-free season:* About 145 days

### **Characteristics of the Typic Torriorthents**

*Percent of rock fragments on the surface:* 0 to 50 percent cobbles, pebbles, stones, and boulders

*Representative profile:*

0 to 6 inches—light brownish gray stony sandy loam

6 to 10 inches—light gray very gravelly sandy loam

10 to 60 inches—light gray extremely gravelly loamy sand

*Depth class:* Moderately deep to very deep

*Drainage class:* Well drained to excessively drained

*Permeability:* Moderately slow to rapid

*Available water capacity:* Low to high

*Restriction affecting rooting depth:* Consolidated material or bedrock at a depth of 20 to more than 60 inches

*Runoff:* Medium or rapid

*Hazard of water erosion:* Severe

*Hazard of wind erosion:* Moderate

### **Characteristics of the Rubble Land**

*Kind of material:* More than 90 percent loose surface stones

### **Contrasting Inclusions**

Dors, Loray, Davey, Royal, and McKeeth soils; soils that have slopes of less than 20 percent; soils that have bedrock at a depth of 10 to 20 inches; Rock outcrop

### **Use and Management**

*Major use:* Rangeland

*Major management factors:* Rock fragments on the surface, hazard of water erosion, hazard of wind erosion, depth to bedrock, depth to consolidated material, slope, low precipitation, areas of Rubble land

*Dominant vegetation in potential natural plant community:* Shadscale, bud sagebrush, Indian ricegrass

### **Interpretive Groups**

*Land capability classification:* VIIe, nonirrigated

*Range site:* Calcareous Loam, 7- to 10-inch precipitation zone

## **166—Urban land**

### **Composition**

Urban land—90 percent

Contrasting inclusions—10 percent

### **Setting**

*Location in survey area:* Mountain Home area

*Position on landscape:* Basalt plains, stream terraces

*Slope:* 0 to 2 percent

*Elevation:* About 3,100 feet

*Average annual precipitation:* About 10 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 130 days

### **Characteristics of the Urban Land**

*Kind of material:* Areas covered mostly by streets and buildings

*Special features:* Soils under the structures on the north side of town are similar to the Buko soils; soils under the structures on the south side are similar to the Power soils

### **Contrasting Inclusions**

Power, Buko, and Colthorp soils in undisturbed areas

### **Interpretive Groups**

*Land capability classification:* Not assigned

## **167—Vanderhoff fine sandy loam, 0 to 4 percent slopes**

### **Composition**

Vanderhoff soil and similar inclusions—80 percent

Contrasting inclusions—20 percent

### **Setting**

*Position on landscape:* Dissected lacustrine terraces

*Elevation:* About 2,700 feet

*Average annual precipitation:* About 7 inches

*Average annual air temperature:* About 51 degrees F

*Frost-free season:* About 135 days

### **Characteristics of the Vanderhoff Soil**

*Typical profile:*

0 to 3 inches—light gray fine sandy loam

3 to 19 inches—light gray very fine sandy loam

19 to 32 inches—white silt loam

32 inches—weathered siltstone

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Moderate

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow

*Hazard of water erosion:* Slight

*Hazard of wind erosion:* Moderate

### ***Contrasting Inclusions***

Dors, Loray, McKeeth, and Mazuma soils; soils that have slopes of more than 4 percent

### ***Use and Management***

*Major uses:* Rangeland, irrigated cropland

*Major management factors:* Available water capacity, depth to consolidated material, hazard of wind erosion, rooting depth, low precipitation

### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Shadscale, bud sagebrush, Indian ricegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation.
- Installation of pipelines is limited by the depth to bedrock.

### **Cropland**

*General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- Suitable irrigation methods are sprinkler, furrow, and corrugation systems.
- Leveling is needed in sloping areas for efficient application and removal of irrigation water.
- Surface drains are needed to remove tailwater if surface irrigation is used.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- Maintaining crop residue on the surface, planting field windbreaks, keeping tillage at a minimum, and keeping the surface of the soil rough reduce the hazard of wind erosion.

### ***Interpretive Groups***

*Land capability classification:* IIIe, irrigated; VIIc, nonirrigated

*Range site:* Calcareous Loam, 7- to 10-inch precipitation zone

## **168—Vanderhoff fine sandy loam, 4 to 12 percent slopes**

### ***Composition***

Vanderhoff soil and similar inclusions—85 percent

Contrasting inclusions—15 percent

### ***Setting***

*Position on landscape:* Dissected lacustrine terraces

*Elevation:* About 2,700 feet

*Average annual precipitation:* About 7 inches

*Average annual air temperature:* About 51 degrees F

*Frost-free season:* About 135 days

### ***Characteristics of the Vanderhoff Soil***

*Typical profile:*

0 to 3 inches—light gray fine sandy loam

3 to 19 inches—light gray very fine sandy loam

19 to 32 inches—white silt loam

32 inches—weathered siltstone

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Moderate

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### ***Contrasting Inclusions***

Dors, Loray, McKeeth, and Mazuma soils; Badland; soils that have slopes of less than 4 percent or more than 12 percent

### ***Use and Management***

*Major uses:* Rangeland, irrigated cropland

*Major management factors:* Available water capacity, depth to consolidated material, hazard of water erosion, hazard of wind erosion, rooting depth, low precipitation

### **Rangeland**

*Dominant vegetation in potential natural plant community:*

Shadscale, bud sagebrush, Indian ricegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is poor. Seeding is limited mainly by low precipitation.
- Installation of pipelines is limited by the depth to bedrock.

**Cropland***General management considerations:*

- Most climatically suited crops can be grown if irrigation water is provided.
- The best suited irrigation method is a sprinkler system.
- Regulating the applications of irrigation water helps to control runoff and erosion.
- Returning crop residue to the soil, regularly adding manure, rotating crops, and keeping tillage at a minimum increase the water intake rate and improve tilth.
- Keeping sprinkler irrigation rates at a minimum, keeping tillage at a minimum, returning crop residue to the soil, and regularly adding manure reduce surface crusting.
- Keeping tillage at a minimum, maintaining a cloddy surface, and maintaining tilth and the content of organic matter reduce the risk of water erosion.
- Maintaining crop residue on the surface, planting field windbreaks, keeping tillage at a minimum, and keeping the surface of the soil rough reduce the hazard of wind erosion.

**Interpretive Groups**

*Land capability classification:* IVE, irrigated; VIIe, nonirrigated

*Range site:* Calcareous Loam, 7- to 10-inch precipitation zone

**169—Vanderhoff-Buko-Loray complex, 2 to 20 percent slopes****Composition**

Vanderhoff soil and similar inclusions—45 percent  
 Buko soil and similar inclusions—20 percent  
 Loray soil and similar inclusions—20 percent  
 Contrasting inclusions—15 percent

**Setting**

*Position on landscape:* Dissected terraces  
*Elevation:* About 2,700 feet  
*Average annual precipitation:* About 8 inches  
*Average annual air temperature:* About 51 degrees F  
*Frost-free season:* About 135 days

**Characteristics of the Vanderhoff Soil**

*Position on landscape:* Breaks, side slopes  
*Slope:* 8 to 20 percent  
*Percent of rock fragments on the surface:* 10 to 40 percent pebbles

*Typical profile:*

0 to 19 inches—light gray gravelly fine sandy loam  
 19 to 32 inches—white silt loam  
 32 inches—weathered siltstone

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Low

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

**Characteristics of the Buko Soil**

*Position on landscape:* Side slopes, toe slopes

*Slope:* 2 to 12 percent

*Percent of rock fragments on the surface:* 0 to 15 percent pebbles

*Typical profile:*

0 to 7 inches—pale brown fine sandy loam  
 7 to 24 inches—very pale brown loam  
 24 to 28 inches—variegated, slightly cemented very gravelly sand  
 28 to 60 inches—variegated extremely cobbly sand

*Depth class:* Very deep

*Depth to very gravelly material:* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow in the upper 20 to 30 inches; rapid below this depth

*Available water capacity:* Low

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

**Characteristics of the Loray Soil**

*Position on landscape:* Shoulder slopes, toe slopes

*Slope:* 2 to 12 percent

*Percent of rock fragments on the surface:* 20 to 45 percent pebbles

*Typical profile:*

0 to 6 inches—light yellowish brown gravelly fine sandy loam  
 6 to 13 inches—very pale brown gravelly fine sandy loam  
 13 to 60 inches—variegated extremely gravelly sand

*Depth class:* Very deep

*Depth to extremely gravelly material:* 10 to 20 inches

*Drainage class:* Excessively drained

*Permeability:* Moderately rapid

*Available water capacity:* Low

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### ***Contrasting Inclusions***

Mazuma, Hawsley, McKeeth, and Royal soils; Badland; soils that have slopes of more than 20 percent

### ***Use and Management***

*Major use:* Rangeland

*Major management factors:* Available water capacity, depth to consolidated material, hazard of water erosion, hazard of wind erosion, depth to very gravelly or extremely gravelly material, slope, low precipitation

*Dominant vegetation in potential natural plant community:*

Vanderhoff and Loray soils—shadscale, bud sagebrush, Indian ricegrass; Buko soil—Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation and the low available water capacity.
- The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation and the low available water capacity.
- A risk of seepage limits the construction of livestock watering ponds and other water impoundments.
- Loss of the upper layer results in a severe decrease in the potential of the soil to produce forage.

### ***Interpretive Groups***

*Land capability classification:* VIIe, nonirrigated

*Range site:* Vanderhoff and Loray soils—Calcareous Loam, 7- to 10-inch precipitation zone; Buko soil—Sandy Loam, 8- to 12-inch precipitation zone

## **170—Vining very stony fine sandy loam, 0 to 8 percent slopes**

### ***Composition***

Vining soil and similar inclusions—75 percent

Contrasting inclusions—25 percent

### ***Setting***

*Position on landscape:* Basalt plains

*Elevation:* About 3,000 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 51 degrees F

*Frost-free season:* About 130 days

### ***Characteristics of the Vining Soil***

*Percent of rock fragments on the surface:* 5 to 15 percent stones

*Typical profile:*

0 to 4 inches—pale brown and very pale brown very stony fine sandy loam (when mixed)

4 to 12 inches—very pale brown loam

12 to 37 inches—very pale brown sandy loam

37 inches—unweathered bedrock

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* Moderate

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### ***Contrasting Inclusions***

Trevino, Royal, Minveno, and Colthorp soils; Rock outcrop; soils that have slopes of more than 8 percent

### ***Use and Management***

*Major use:* Rangeland

*Major management factors:* Stones on the surface, depth to bedrock, hazard of water erosion, hazard of wind erosion, low precipitation

*Dominant vegetation in potential natural plant community:*

Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation, stones on the surface, and the hazard of wind erosion.
- Installation of pipelines is limited by the depth to bedrock.

### ***Interpretive Groups***

*Land capability classification:* VIe, nonirrigated

*Range site:* Sandy Loam, 8- to 12-inch precipitation zone

## **171—Willhill-Cottle association, 2 to 25 percent slopes**

### ***Composition***

Willhill soil and similar inclusions—45 percent

Cottle soil and similar inclusions—35 percent



Contrasting inclusions—20 percent

### **Setting**

*Position on landscape:* Foothills

*Elevation:* About 3,800 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 49 degrees F

*Frost-free season:* About 110 days

### **Characteristics of the Willhill Soil**

*Position on landscape:* Side slopes

*Percent of rock fragments on the surface:* 1 to 3 percent stones

*Typical profile:*

- 0 to 3 inches—grayish brown stony loam
- 3 to 8 inches—pale brown gravelly clay loam
- 8 to 24 inches—white extremely cobbly loam that is 70 percent hardpan fragments
- 24 inches—weathered bedrock

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Low

*Potential rooting depth:* 20 to 40 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Characteristics of the Cottle Soil**

*Position on landscape:* Ridges, shoulder slopes

*Percent of rock fragments on the surface:* 1 to 3 percent stones

*Typical profile:*

- 0 to 4 inches—very pale brown stony loam
- 4 to 11 inches—very pale brown very gravelly clay loam
- 11 to 14 inches—pink extremely gravelly clay loam
- 14 inches—unweathered bedrock

*Depth class:* Shallow

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* Low

*Potential rooting depth:* 10 to 20 inches

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Bruncan, Sidlake, and Garbutt soils; Rock outcrop

### **Use and Management**

*Major use:* Rangeland

*Major management factors:* Available water capacity,

stones on the surface, depth to bedrock, hazard of water erosion, low precipitation

*Dominant vegetation in potential natural plant community:*

Willhill soil—Wyoming big sagebrush, bluebunch wheatgrass; Cottle soil—Wyoming big sagebrush, Thurber needlegrass

*General management considerations:*

- Forage production is limited mainly by low precipitation, the low available water capacity, and the restricted rooting depth.
- The suitability of this map unit for range seeding is poor. Seeding is limited by low precipitation, the stones on the surface, and the low available water capacity.
- The use of equipment is limited by the stones on the surface.
- Loss of the upper layer results in a severe decrease in the potential of the soil to produce forage.
- Installation of pipelines and fences is limited by the depth to bedrock.

### **Interpretive Groups**

*Land capability classification:* Vle, nonirrigated

*Range site:* Willhill soil—Loamy, 10- to 13-inch precipitation zone; Cottle soil—Loamy, 8- to 10-inch precipitation zone

## **172—Xeric Torriorthents-Xerollic Camborthids complex, 20 to 70 percent slopes**

### **Composition**

Xeric Torriorthents, Xerollic Camborthids, and similar inclusions—75 percent

Contrasting inclusions—25 percent

### **Setting**

*Position on landscape:* Dissected fan terraces, dissected lacustrine terraces

*Elevation:* About 3,200 feet

*Average annual precipitation:* About 9 inches

*Average annual air temperature:* About 50 degrees F

*Frost-free season:* About 130 days

### **Characteristics of the Xeric Torriorthents**

*Percent of rock fragments on the surface:* 0 to 25 percent cobbles and stones

*Representative profile:*

- 0 to 5 inches—pale brown fine sandy loam
- 5 to 22 inches—light gray silty clay loam
- 22 to 60 inches—light gray, consolidated lacustrine sediment

*Depth class:* Moderately deep to very deep  
*Drainage class:* Well drained  
*Permeability:* Moderately slow to rapid  
*Available water capacity:* Low to high  
*Potential rooting depth:* 20 to more than 60 inches  
*Restriction affecting rooting depth:* Very gravelly material or consolidated lake sediments at a depth of 20 to more than 60 inches  
*Runoff:* Medium  
*Hazard of water erosion:* Moderate  
*Hazard of wind erosion:* Moderate

### **Characteristics of the Xerollic Camborthids**

*Percent of rock fragments on the surface:* 0 to 20 percent cobbles and stones  
*Representative profile:*  
 0 to 10 inches—brown and pale brown fine sandy loam (when mixed)  
 10 to 14 inches—pale brown and light brownish gray sandy loam  
 14 to 24 inches—very pale brown sandy loam  
 24 to 60 inches—variegated extremely gravelly sand

*Depth class:* Moderately deep to very deep  
*Drainage class:* Well drained to excessively drained  
*Permeability:* Moderately slow to rapid  
*Available water capacity:* Low to high  
*Potential rooting depth:* 20 to more than 60 inches  
*Restriction affecting rooting depth:* Extremely gravelly material or consolidated material at a depth of 20 to more than 60 inches  
*Runoff:* Medium  
*Hazard of water erosion:* Moderate  
*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Greenleaf, Bahem, Quincy, Vanderhoff, and Loray soils;  
 Rubble land; soils that have slopes of less than 8 percent or more than 20 percent; soils that have a hardpan at a depth of 10 to 40 inches

### **Use and Management**

*Major use:* Rangeland  
*Major management factors:* Available water capacity, cobbles and stones on the surface, depth to consolidated material, hazard of water erosion, hazard of wind erosion, depth to very gravelly or extremely gravelly material, rooting depth, slope, low precipitation  
*Dominant vegetation in potential natural plant community:*  
 Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass

### **Interpretive Groups**

*Land capability classification:* VIIe, nonirrigated  
*Range site:* Sandy Loam, 8- to 12-inch precipitation zone

## **173—Xeric Torriorthents and Xerollic Camborthids, 8 to 20 percent slopes**

### **Composition**

Xeric Torriorthents and similar inclusions—40 percent  
 Xerollic Camborthids and similar inclusions—35 percent  
 Contrasting inclusions—25 percent

### **Setting**

*Position on landscape:* Dissected fan terraces, canyonsides, dissected lacustrine terraces  
*Elevation:* About 3,200 feet  
*Average annual precipitation:* About 9 inches  
*Average annual air temperature:* About 50 degrees F  
*Frost-free season:* About 130 days

### **Characteristics of the Xeric Torriorthents**

*Percent of rock fragments on the surface:* 0 to 50 percent boulders, cobbles, and stones  
*Representative profile:*  
 0 to 5 inches—pale brown fine sandy loam  
 5 to 22 inches—light gray silty clay loam  
 22 to 60 inches—light gray, consolidated lake sediments  
*Depth class:* Moderately deep to very deep  
*Drainage class:* Well drained  
*Permeability:* Moderately slow to rapid  
*Available water capacity:* Low to high  
*Potential rooting depth:* 20 to more than 60 inches  
*Restriction affecting rooting depth:* Very gravelly material or consolidated lake sediments at a depth of 20 to more than 60 inches  
*Hazard of water erosion:* Severe  
*Hazard of wind erosion:* Moderate

### **Characteristics of the Xerollic Camborthids**

*Percent of rock fragments on the surface:* 0 to 50 percent boulders, cobbles, and stones  
*Representative profile:*  
 0 to 10 inches—brown and pale brown loam (when mixed)  
 10 to 14 inches—pale brown and light brownish gray sandy loam  
 14 to 24 inches—very pale brown sandy loam  
 24 to 60 inches—variegated extremely gravelly sand

*Depth class:* Moderately deep to very deep  
*Drainage class:* Well drained to excessively drained  
*Permeability:* Moderately slow to rapid  
*Available water capacity:* Low to high  
*Potential rooting depth:* 20 to more than 60 inches  
*Restriction affecting rooting depth:* Extremely gravelly material or consolidated lake sediments at a depth of 20 to more than 60 inches  
*Runoff:* Medium or rapid  
*Hazard of water erosion:* Severe  
*Hazard of wind erosion:* Moderate

### **Contrasting Inclusions**

Royal, Buko, Dors, and Bahem soils; Rock outcrop; Badland; Rubble land; soils that have slopes of less than 20 percent

### **Use and Management**

*Major use:* Rangeland  
*Major management factors:* Available water capacity, hazard of water erosion, rock fragments on the surface, depth to consolidated lake sediments, depth to very gravelly or extremely gravelly material, slope, low precipitation  
*Dominant vegetation in potential natural plant community:*  
 Xeric Torriorthents—Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass; Xerollic Camborthids—Wyoming big sagebrush, Thurber needlegrass

### **Interpretive Groups**

*Land capability classification:* VIIe, nonirrigated  
*Range site:* Xeric Torriorthents—Sandy Loam, 8- to 12-inch precipitation zone; Xerollic Camborthids—Loamy, 8- to 10-inch precipitation zone

## **174—Yuttrue very stony silty clay, 0 to 12 percent slopes**

### **Composition**

Yuttrue soil and similar inclusions—80 percent  
 Contrasting inclusions—20 percent

### **Setting**

*Position on landscape:* Basalt plains, terraces  
*Elevation:* About 5,000 feet  
*Average annual precipitation:* About 14 inches

*Average annual air temperature:* About 45 degrees F  
*Frost-free season:* About 90 days

### **Characteristics of the Yuttrue Soil**

*Percent of rock fragments on the surface:* 5 to 15 percent stones

*Typical profile:*

0 to 8 inches—light brownish gray and brown very stony silty clay  
 8 to 34 inches—pale brown and light brownish gray silty clay  
 34 to 45 inches—pale brown silty clay loam  
 45 to 60 inches—very pale brown silt loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* High

*Potential rooting depth:* 60 inches or more

*Runoff:* Slow or medium

*Hazard of water erosion:* Moderate

### **Contrasting Inclusions**

Karcas, Day, Chardoton, Chilcott, and Willho soils; soils that have more than 15 percent of the surface covered with stones; Rubble land

### **Use and Management**

*Major use:* Rangeland  
*Major management factors:* Stones on the surface, hazard of water erosion, potential for shrinking and swelling, low precipitation  
*Dominant vegetation in potential natural plant community:*  
 Low sagebrush, bluebunch wheatgrass  
*General management considerations:*

- Forage production is limited mainly by low precipitation.
- The suitability of this map unit for range seeding is poor. Seeding is limited by the stones on the surface and by a potential for shrinking and swelling.
- The use of equipment is limited by the stones on the surface.
- Construction of fences is limited by a potential for shrinking and swelling.

### **Interpretive Groups**

*Land capability classification:* VIIs, nonirrigated  
*Range site:* Shallow Stony Loam, 8- to 16-inch precipitation zone



# Prime Farmland

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Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is the land that is best suited to food, feed, forage, fiber, and oilseed crops. It may be cultivated land, pasture, woodland, or other land, but it is not urban and built-up land or water areas. It either is used for food or fiber crops or is available for those crops. The soil qualities, growing season, and moisture supply are those needed for a well managed soil to produce a sustained high yield of crops in an economic manner. Prime farmland produces the highest yields with minimal expenditure of energy and economic resources, and farming it results in the least damage to the environment.

Prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation. The temperature and growing season are favorable. The level of acidity or alkalinity is acceptable. Prime farmland has few or no rocks and is permeable to water and air. It is not excessively erodible or saturated with water for long periods and is not frequently flooded during the growing season. The slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Soil Conservation Service.

A recent trend in land use in some parts of the survey area has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

Soils that have limitations, such as a seasonal high water table, frequent flooding during the growing

season, or inadequate rainfall, qualify for prime farmland only in areas where these limitations have been overcome by such measures as drainage, flood control, or irrigation. The need for these measures is indicated after the map unit name on the following list. Onsite evaluation is necessary to determine whether or not these limitations have been overcome by corrective measures.

The following map units meet the soil requirements for prime farmland. The location of each map unit is shown on the detailed soil maps at the back of this publication. Soil qualities that affect use and management are described in the section "Detailed Soil Map Units." This list does not constitute a recommendation for a particular land use.

- |    |   |
|----|---|
| 1  | Abgese loamy sand, 2 to 8 percent slopes (where irrigated)                    |
| 3  | Abgese sandy loam, 0 to 4 percent slopes (where irrigated)                    |
| 4  | Arbidge fine sandy loam, 1 to 4 percent slopes (where irrigated)              |
| 5  | Arbidge-Buko complex, 1 to 8 percent slopes (where irrigated)                 |
| 7  | Bahem silt loam, 0 to 4 percent slopes (where irrigated)                      |
| 10 | Baldock loam, 0 to 2 percent slopes (where irrigated and drained)             |
| 11 | Bram silt loam, 0 to 2 percent slopes (where irrigated and drained)           |
| 12 | Bramwell silty clay loam, 0 to 1 percent slopes (where irrigated and drained) |
| 13 | Brinegar loam, 0 to 4 percent slopes  |
| 21 | Buko fine sandy loam, 1 to 4 percent slopes (where irrigated)                 |
| 22 | Buko fine sandy loam, 4 to 12 percent slopes (where irrigated)                |
| 23 | Chardoton silt loam, 0 to 4 percent slopes (where irrigated)                  |
| 24 | Chilcott silt loam, 0 to 4 percent slopes (where irrigated)                   |

29	Chilcott-Power complex, 0 to 8 percent slopes (where irrigated)	101	Mazuma-Hawsley complex, 0 to 12 percent slopes (where irrigated)
44	Davey loamy sand, 4 to 12 percent slopes (where irrigated)	108	Monroe-Jenness complex, 0 to 2 percent slopes (where irrigated)
45	Davey loamy fine sand, 0 to 4 percent slopes (where irrigated)	109	Monroe-Goose Creek association, 0 to 2 percent slopes (where irrigated)
46	Davey-Buko complex, 1 to 12 percent slopes (where irrigated)	113	Owsel-Purdam complex, 1 to 12 percent slopes (where irrigated)
54	Elijah silt loam, 0 to 4 percent slopes (where irrigated)	116	Power silt loam, 1 to 4 percent slopes (where irrigated)
56	Elijah-Purdam silt loams, 0 to 8 percent slopes (where irrigated)	117	Power-Chardoton complex, 0 to 4 percent slopes (where irrigated)
65	Garbutt silt loam, 0 to 4 percent slopes (where irrigated)	118	Power-Jenness complex, 0 to 2 percent slopes (where irrigated)
67	Garbutt-Weso complex, 0 to 2 percent slopes (where irrigated)	119	Power-Purdam silt loams, 0 to 1 percent slopes (where irrigated)
70	Grandview loam, 0 to 4 percent slopes (where irrigated and drained)	120	Purdam silt loam, 0 to 4 percent slopes (where irrigated)
71	Grandview, drained-Garbutt silt loams, 0 to 4 percent slopes (where irrigated)	133	Royal fine sandy loam, 0 to 4 percent slopes (where irrigated)
73	Greenleaf very fine sandy loam, 0 to 4 percent slopes (where irrigated)	134	Royal fine sandy loam, 4 to 12 percent slopes (where irrigated)
79	Hawsley loamy sand, 0 to 12 percent slopes (where irrigated)	135	Royal-Davey complex, 0 to 12 percent slopes (where irrigated)
84	Jacquith loamy sand, 4 to 12 percent slopes (where irrigated)	138	Royal-Truesdale fine sandy loams, 0 to 4 percent slopes (where irrigated)
85	Jacquith loamy fine sand, 1 to 8 percent slopes (where irrigated)	141	Scism silt loam, 0 to 4 percent slopes (where irrigated)
90	Lankbush sandy loam, 0 to 4 percent slopes (where irrigated)	143	Shano loam, 1 to 12 percent slopes (where irrigated)
92	Lankbush-Jenness association, 0 to 4 percent slopes (where irrigated)	144	Shano-Owsel complex, 0 to 12 percent slopes (where irrigated)
93	Lanktree loam, 0 to 4 percent slopes (where irrigated)	145	Shano-Truesdale fine sandy loams, 0 to 12 percent slopes (where irrigated)
95	Letha fine sandy loam, drained, 0 to 4 percent slopes (where irrigated)	155	Timmerman sandy loam, 0 to 4 percent slopes (where irrigated)
96	Letha loam, 0 to 2 percent slopes (where irrigated and drained)	156	Timmerman sandy loam, 4 to 12 percent slopes (where irrigated)
97	Letha-Baldock loams, 0 to 2 percent slopes (where irrigated and drained)	161	Truesdale fine sandy loam, 0 to 4 percent slopes (where irrigated)
100	Mazuma fine sandy loam, 0 to 4 percent slopes (where irrigated)	162	Truesdale fine sandy loam, 4 to 12 percent slopes (where irrigated)

# Use and Management of the Soils

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This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help avoid soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as rangeland and woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreation facilities; and for wildlife habitat. It can be used to identify the limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

## Crops and Pasture

By Gene Crisman, district conservationist, Soil Conservation Service.

General management needed for crops and pasture

is suggested in this section. The system of land capability classification used by the Soil Conservation Service is explained, and the estimated yields of the main crops and hay and pasture plants are listed for each soil.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under "Detailed Soil Map Units." Specific information can be obtained from the local office of the Soil Conservation Service or the Cooperative Extension Service.

In 1985, about 270,000 acres in the survey area was used for cultivated crops and for hay and pasture. Of this, about 196,000 acres was used for irrigated crops, 32,000 acres for nonirrigated crops, and 42,000 acres for hay and pasture.

Because livestock operations are important in the survey area, about 50 percent of the total cropland in the area is used for improved pasture and hay, grain, and silage corn for livestock feed. Other major crops grown in the area include potatoes, dry beans, and sugar beets. Sweet corn, alfalfa and clover for seed, and mint are also grown. A small acreage is used for specialty crops, such as vegetables for seed. A large variety of crops is suited to this area because of the wide range of soils and climatic conditions. The soils range from loamy sand and sand to clay loam with relatively high reaction, and the average annual precipitation in areas used for crops ranges from 7 inches at an elevation of 2,300 feet to 15 inches at an elevation of 5,000 feet.

The native vegetation in areas at the lower elevations consists mainly of range grasses and sagebrush, and most of the soils in these areas that are used as cropland are irrigated. A limited acreage of nonirrigated cropland is in the Mayfield-Orchard area, but it produces marginal yields.

Corrugation, furrow, border, and sprinkler irrigation systems commonly are used in the survey area. On most surface-irrigated farmland in the area, efforts have been made to improve the effectiveness and efficiency of the irrigation systems. These efforts include

smoothing the land, reorganizing the fields, lining ditches with concrete, installing pipelines, and constructing water-control structures. Overirrigation on surface-irrigated land, however, is still a serious problem in many areas. In the Grand View-Bruneau area, where water is relatively inexpensive and plentiful, a high water table is present in many of the lower lying areas.

Sprinkler irrigation systems have been used on nearly all cropland developed since 1964. In addition, the surface irrigation systems on many older farms have been replaced by sprinkler systems. Sprinklers are more efficient than other systems and require less extensive land smoothing. This fact is important for the survey area because of the rolling topography and the restricted depth in many areas to sand or gravel or to a hardpan over bedrock or gravel. Deep cuts can expose the less desirable underlying material and reduce crop production and selection.

Proper management of irrigation water and use of a conservation cropping system are needed to control erosion. Steep, highly erodible soils should be planted to permanent pasture, used as wildlife habitat, or left undisturbed. If these soils are cultivated, tillage should be kept at a minimum to reduce the risk of erosion and maintain the infiltration rate.

Keeping tillage at a minimum, managing crop residue, and farming across the slope are needed to prevent erosion on nonirrigated soils. Stubble mulching and planting barrier strips also help to control wind erosion on some of the more nearly level nonirrigated soils near Orchard.

### **Yields Per Acre**

The average yields per acre that can be expected of the principal irrigated crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in climatic factors.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable

soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green-manure crops; and harvesting that ensures the smallest possible loss.

It is assumed that the irrigation system is adapted to the soils and to the crops grown, that good-quality irrigation water is uniformly applied as needed, and that tillage is kept to a minimum.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 5 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Soil Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

### **Land Capability Classification**

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for woodland, and for engineering purposes.

In the capability system (9), soils generally are grouped at three levels: capability class, subclass, and unit. Only class and subclass are used in this survey.

*Capability classes*, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have few limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the



choice of plants or that require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

Class V soils are not likely to erode but have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production.

*Capability subclasses* are soil groups within one class. They are designated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, IIIe. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class I there are no subclasses because the soils of this class have few limitations. Class V contains only the subclasses indicated by *w*, *s*, or *c* because the soils in class V are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, wildlife habitat, or recreation.

The capability classification of each map unit is given in the section "Detailed Soil Map Units."

## Rangeland

By Tim Ouellette, range conservationist, Soil Conservation Service.

About 82 percent, or 2,120,270 acres, of the survey area is used as rangeland. About 1,736,000 acres, or 82 percent, of this rangeland is administered by the Bureau of Land Management and the Forest Service. The remaining 18 percent is administered by the state or is privately owned.

Commercial cow-calf operations are dominant in the survey area. Some sheep, purebred cattle, feedlot, and dairy operations are also in the area.

The rangeland is used primarily for grazing in spring, summer, and fall, but some operations also use the rangeland for limited grazing in winter. The typical grazing season begins about April 1, when livestock are

allowed to graze areas at the lower elevations. The grazing season extends through mid-December, when livestock commonly are moved from the rangeland to pastures and stubble fields or to dry lots for winter. During the grazing season, a combination of federal, state, and private lands are grazed.

Before the turn of the century, the rangeland supported a mixed stand of bunchgrasses, shrubs, and forbs. It was well suited to spring, summer, and fall grazing and was used by large numbers of sheep and cattle. Heavy use and yearlong grazing have drastically altered the native plant community since the turn of the century. The more desirable grasses and forbs commonly have been replaced by less desirable plants, such as cheatgrass, medusahead wildrye, rabbitbrush, and sagebrush. Thus the production of forage and ground cover has been greatly reduced, which increases the susceptibility of the rangeland to erosion.

In areas that have similar climate and topography, differences in the kind and amount of vegetation produced on rangeland are closely related to the kind of soil. Effective management is based on the relationship between the soils and vegetation and water.

Table 6 shows, for each soil, the range site; the total annual production of vegetation in favorable, normal, and unfavorable years; the characteristic vegetation; and the average percentage of each species. Only those soils that are used as rangeland or are suited to use as rangeland are listed. An explanation of the column headings in table 6 follows.

A *range site* is a distinctive kind of rangeland that produces a characteristic natural plant community that differs from natural plant communities on other range sites in kind, amount, and proportion of range plants. The relationship between soils and vegetation was established during this survey; thus, range sites generally can be determined directly from the soil map. Soil properties that affect moisture supply and plant nutrients have the greatest influence on the productivity of range plants. Soil reaction, salt content, and a seasonal high water table are also important.

Each range site is identified by a range site number, a name that includes soil or topographic characteristics and the mean annual precipitation, and the main species in the plant community. The range site numbers are used mainly to coordinate range sites within and between states. An example of such a number is *010by019i*. The first three digits identify the major land resource area. The next two letters are subdivisions of the land resource area. If there are no subdivisions, an *x* and *y* appear in these positions. The next three digits make up the coordinated range site number, which is

followed by a letter that identifies the state in which the range site occurs. Land resource area subdivision maps are available at the local offices of the Soil Conservation Service. The key indicator species in the plant community are given in abbreviated form following the range site name and number. The abbreviations are defined in the "National List of Scientific Plant Names" (11).

*Total production* is the amount of vegetation that can be expected to grow annually on well managed rangeland that is supporting the potential natural plant community. It includes all vegetation, whether or not it is palatable to grazing animals. It includes the current year's growth of leaves, twigs, and fruit of woody plants. It does not include the increase in stem diameter of trees and shrubs. It is expressed in pounds per acre of air-dry vegetation for favorable, normal, and unfavorable years. In a favorable year, the amount and distribution of precipitation and the temperatures make growing conditions substantially better than average. In a normal year, growing conditions are about average. In an unfavorable year, growing conditions are well below average, generally because of low available soil moisture.

*Dry weight* is the total annual yield per acre of air-dry vegetation. Yields are adjusted to a common percent of air-dry moisture content. The relationship of green weight to air-dry weight varies according to such factors as exposure, amount of shade, recent rains, and unseasonable dry periods.

*Characteristic vegetation*—the grasses, forbs, and shrubs that make up most of the potential natural plant community on each soil—is listed by common name. Under *composition*, the expected percentage of the total annual production is given for each species making up the characteristic vegetation. The amount that can be used as forage depends on the kinds of grazing animals and on the grazing season.

Range management requires a knowledge of the kinds of soil and of the potential natural plant community. It also requires an evaluation of the present range condition. Range condition is determined by comparing the present plant community with the potential natural plant community on a particular range site. The more closely the existing community resembles the potential community, the better the range condition. Range condition is an ecological rating only. It does not have a specific meaning that pertains to the present plant community in a given use.

The objective in range management is to control grazing so that the plants growing on a site are about the same in kind and amount as the potential natural

plant community for that site. Such management generally results in the optimum production of vegetation, control of undesirable brush species, conservation of water, and control of erosion. Sometimes, however, a range condition somewhat below the potential meets grazing needs, provides wildlife habitat, and protects soil and water resources.

The primary management practice needed on rangeland in this survey area is a planned grazing system that allows plants to achieve adequate growth in spring to withstand grazing pressure, allows the soils to dry out in spring to avoid damage from trampling, allows for periodic rest or deferment of grazing, and allows for removal of livestock when an optimum amount of forage has been grazed. Practices such as constructing water developments and fences, managing brush, range seeding, and properly distributing livestock facilitate the grazing system and help to bring about needed changes in the plant community. The suitability of specific practices is determined by the various characteristics of individual soils.

## Woodland

The areas of woodland are in the mountainous northern part of the survey area. They make up about 200,000 acres. The Broad Canyon, Coski, Graylock, Grousecreek, Quartzburg, Stavely, Switchback, and Wagontown soils support stands of timber. Most areas are federally administered. The management and production of woodland is discussed in the section "Detailed Soil Map Units."

## Windbreaks and Environmental Plantings

Windbreaks protect livestock, buildings, and yards from wind and snow. They also protect fruit trees and gardens, and they furnish habitat for wildlife. Several rows of low- and high-growing broadleaf and coniferous trees and shrubs provide the most protection.

Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil. Field windbreaks protect cropland and crops from wind, hold snow on the fields, and provide food and cover for wildlife.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To insure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

Table 7 shows the height that locally grown trees and shrubs are expected to reach in 20 years on various soils. The estimates in table 7 are based on measurements and observation of established plantings that have been given adequate care. They can be used as a guide in planning windbreaks and screens. Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from local offices of the Soil Conservation Service or the Cooperative Extension Service or from a nursery.

## Recreation

The survey area includes many scenic areas and recreational opportunities. The northern part of the area has nationally famous trout streams and good big-game hunting areas. The foothills and valleys provide excellent habitat for upland game.

The open desert in the southern part of the area provides numerous recreational opportunities. Many acres of public land are used extensively for offroad-vehicle traffic.

The Bruneau Sand Dunes State Park provides sites for camping, picnicking, and fishing. The dunes are among the largest inland dunes in existence. C.J. Strike and Anderson Ranch Reservoirs provide areas for various water sports (fig. 9).

## Wildlife Habitat

By Mike Anderson, biologist, Soil Conservation Service.

Elevation in the survey area ranges from 2,300 to 8,200 feet, and average annual precipitation ranges from 6 to 35 inches. The varied topography, soils, and rainfall and the many different uses of the land in the survey area produce a wide variety of habitats for numerous wildlife species. The area supports more than 148 resident wildlife species and 184 migratory species. Included are 64 species of mammals, 241 species of birds, 19 species of reptiles, and 8 species of amphibians (16).

The most abundant game fish in the area is rainbow trout. Other important species include white sturgeon, kokanee salmon, brown trout, red band trout, largemouth bass, smallmouth bass, and channel catfish. Important fishing waters include Arrowrock, Anderson Ranch, Camas, and C.J. Strike Reservoirs, the Snake River, the South Fork Boise River, and the Bruneau River. The South Fork Boise River has received national acclaim for its superb rainbow trout fishery.

Wildlife populations largely are determined by the

suitability of the habitat; that is, the supply of food, cover, and water. Because of the differences in soils and in how they are managed, habitats differ in their capacity to provide these essential needs. Good management practices, which include consideration of both wildlife conservation and desired land uses, help to improve habitat for wildlife.

Wildlife use riparian areas more than any other kind of habitat because the production and diversity of vegetation are highest in these areas. Healthy, vigorous riparian areas are key to the survival of many wildlife species. The vegetation along drainageways is used as a corridor between different elevation zones and habitat areas. Big game and upland game use riparian areas for water, food, and cover. Many species of nongame birds and mammals use this habitat during part or all of their life cycle. Many other species, including beaver, muskrat, mink, waterfowl, and amphibians, live in riparian areas almost exclusively. Livestock, especially cattle, are attracted to riparian areas because they provide shade, water, and food. The soils in general soil map units 1, 2, and 3 are best suited to the development of riparian habitat.

Mule deer is the most abundant big game animal in the survey area, but elk and pronghorn antelope also winter in the area. Coyote, fox, badgers, skunks, and numerous rodents, including ground squirrels and tree squirrels, are found in the area.

A variety of upland game species use almost all of the different habitat types in the survey area. Some species, such as pheasant, mourning dove, valley quail, and Hungarian partridge, are closely associated with the private farmland, and others, such as sage grouse, mountain quail, chukar partridge, and rabbits, are dependent on the rangeland. Blue grouse are found mainly in riparian areas bordering timberland.

Waterfowl are found throughout the survey area in bodies of water and in wetland areas. The largest concentrations of waterfowl are along the Snake River and near the reservoirs. Principal waterfowl species include Canada geese, mallard, teal, and sandhill crane. A large concentration of nesting waterfowl use the areas of wetland along the western edge of Camas Prairie.

Mule deer mainly use the habitat on the national forest land, but the Bennett Mountains and the canyons of the Bruneau River, the South Fork Boise River, and the Snake River also provide yearlong habitat for mule deer. The major winter range for deer is in the Bennett Mountains, which are in general soil map units 7 and 14, and along the South Fork Boise River. General soil map units 6, 7, 14, 15, and 16 provide or have the



**Figure 9.—View of Anderson Ranch Reservoir, near Fall Creek. Stavely, Coski, and Switchback soils are under forest vegetation; Rainey, Schoolhouse, and Oland soils are under sagebrush and grasses.**

potential to provide winter range for big game, including deer and elk. The survey area provides crucial winter range for elk, and it provides winter and summer range for antelope.

Sage grouse is the dominant upland game bird in the survey area. This species inhabits areas that support sagebrush and bunchgrass. Sage grouse also feed on forbs and insects in wetland and wet meadow areas late in spring and in summer. Scattered populations of chukar partridge are in canyons in areas of rocky soils that are near a dependable water supply. Blue grouse are widely scattered throughout the northern part of the survey area in areas of forest land that are close to

riparian areas. Small populations of mountain quail are along the riparian areas in isolated, steep canyons.

Pheasants, Hungarian partridge, and valley quail are primarily in areas on the Snake River Plain that are used for agriculture. Pheasants are the most numerous and widespread of these birds. Valley quail use habitat that provides a good mix of shrubby and herbaceous vegetation and is near water. Mourning dove use habitat throughout the area in spring and summer, but they migrate out of the area in fall.

## Engineering

This section provides information for planning land

uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. The ratings are given in the following tables: Building Site Development, Sanitary Facilities, Construction Materials, and Water Management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil Properties" section.

*Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.*

*The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.*

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations need to be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 or 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to (1) evaluate the potential of areas for residential, commercial, industrial, and recreation uses; (2) make preliminary estimates of construction conditions; (3) evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; (4) evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; (5) plan detailed onsite investigations of soils and geology; (6) locate potential sources of gravel, sand, earthfill, and topsoil; (7) plan drainage systems,

irrigation systems, ponds, terraces, and other structures for soil and water conservation; and (8) predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

### **Building Site Development**

Table 8 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features generally are favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

*Shallow excavations* are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock, a cemented pan, or a very firm dense layer; stone content; soil texture; and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and the depth to the water table.

*Dwellings and small commercial buildings* are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance

of the soils. A high water table, flooding, shrink-swell potential, and organic layers can cause the movement of footings. A high water table, depth to bedrock or to a cemented pan, large stones, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 or 6 feet are not considered.

*Local roads and streets* have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material, a base of gravel, crushed rock, or stabilized soil material, and a flexible or rigid surface. Cuts and fills generally are limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock or to a cemented pan, a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, frost action potential, and depth to a high water table affect the traffic-supporting capacity.

*Lawns and landscaping* require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, a high water table, depth to bedrock or to a cemented pan, the available water capacity in the upper 40 inches, and the content of salts, sodium, and sulfidic materials affect plant growth. Flooding, wetness, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

### Sanitary Facilities

Table 9 shows the degree and the kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations are considered *slight* if soil properties and site features generally are favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

Table 9 also shows the suitability of the soils for use as daily cover for landfills. A rating of *good* indicates that soil properties and site features are favorable for

the use and good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated *good*; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

*Septic tank absorption fields* are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table, depth to bedrock or to a cemented pan, and flooding affect absorption of the effluent. Large stones and bedrock or a cemented pan interfere with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to filter the effluent effectively. Many local ordinances require that this material be of a certain thickness.

*Sewage lagoons* are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

Table 9 gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, a high water table, depth to bedrock or to a cemented pan, flooding, large stones, and content of organic matter.

Excessive seepage because of rapid permeability of the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to



function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor.

*Sanitary landfills* are areas where solid waste is disposed of by burying it in soil. There are two types of landfill—trench and area. In a trench landfill, the waste is placed in a trench. It is spread, compacted, and covered daily with a thin layer of soil excavated at the site. In an area landfill, the waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground-water pollution. Ease of excavation and revegetation needs to be considered.

The ratings in table 9 are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock or to a cemented pan, a high water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium affect trench type landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

*Daily cover for landfill* is the soil material that is used to cover compacted solid waste in an area type sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

Soil texture, wetness, coarse fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils that are free of large stones or excess gravel are the best cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to wind erosion.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

## Construction Materials

Table 10 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good*, *fair*, or *poor* as a source of roadfill and topsoil. They are rated as a *probable* or *improbable* source of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

*Roadfill* is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel, or both. They have at least 5 feet of suitable material, a low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have a moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They are wet, and the depth to the water table is less than 1 foot. These soils may have layers of suitable material, but the material is less than 3 feet thick.

*Sand and gravel* are natural aggregates suitable for

commercial use with a minimum of processing. Sand and gravel are used in many kinds of construction. Specifications for each use vary widely. In table 10, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the taxonomic unit descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is as much as 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Coarse fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

*Topsoil* is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, bedrock, and toxic material.

Soils rated *good* have friable loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel, stones, or soluble salts, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel, stones, or soluble salts, have slopes of more than 15 percent, or have a seasonal water table at or near the surface.

The surface layer of most soils generally is preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

## Water Management

Table 11 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed ponds. The limitations are considered *slight* if soil properties and site features generally are favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives for each soil the restrictive features that affect drainage and irrigation.

*Pond reservoir areas* hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

*Embankments, dikes, and levees* are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even more than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

*Aquifer-fed excavated ponds* are pits or dugouts that



extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

*Drainage* is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, to a cemented pan, or to other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and potential frost action. Excavating and grading and the stability of

ditchbanks are affected by depth to bedrock or to a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, or sulfur. Availability of drainage outlets is not considered in the ratings.

*Irrigation* is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock or to a cemented pan. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, and soil reaction.



# Soil Properties

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Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classification, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

## Engineering Index Properties

Table 12 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

*Depth* to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each taxonomic unit under "Taxonomic Units and Their Morphology."

*Texture* is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters

in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is as much as 15 percent, an appropriate modifier is added; for example, "gravelly." Textural terms are defined in the Glossary.

*Classification* of the soils is determined according to the Unified soil classification system (2, 7) and the system adopted by the American Association of State Highway and Transportation Officials (1, 7).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification; for example, SP-SM.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

*Rock fragments* larger than 3 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

*Percentage (of soil particles) passing designated sieves* is the percentage of the soil fraction less than 3 inches in diameter based on an oven-dry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard

Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

*Liquid limit and plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of grain-size distribution, liquid limit, and plasticity index are rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

## Physical and Chemical Properties

Table 13 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

*Depth* to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each taxonomic unit under "Taxonomic Units and Their Morphology."

*Clay* as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each major soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They determine the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

*Moist bulk density* is the weight of soil (oven-dry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at  $\frac{1}{3}$  bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In this table, the estimated moist bulk density of each major soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. A bulk

density of more than 1.6 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

*Permeability* refers to the ability of a soil to transmit water or air. The estimates indicate the rate of downward movement of water when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems, septic tank absorption fields, and construction where the rate of water movement under saturated conditions affects behavior.

*Available water capacity* refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each major soil layer. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone.

The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

*Soil reaction* is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

*Salinity* is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of soils in individual fields can differ greatly from the value given in the table. Salinity affects the suitability of a soil for crop production, the stability of the soil if used as construction material, and the potential of the soil to corrode metal and concrete.

*Shrink-swell potential* is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on

the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The change is based on the soil fraction less than 2 millimeters in diameter. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; and *high*, more than 6 percent. *Very high*, more than 9 percent, is sometimes used.

*Erosion factor K* indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter (up to 4 percent) and on soil structure and permeability. The estimates are modified by the presence of rock fragments. Values of K range from 0.05 to 0.69. The higher the value the more susceptible the soil is to sheet and rill erosion by water.

*Erosion factor T* is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

*Wind erodibility groups* are made up of soils that have similar properties affecting their resistance to wind erosion in cultivated areas. The groups indicate the susceptibility of soil to wind erosion. Soils are grouped according to the following distinctions:

1. Coarse sands, sands, fine sands, and very fine sands. These soils are generally not suitable for crops. They are extremely erodible, and vegetation is difficult to establish.

2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, and sapric soil material. These soils are very highly erodible. Crops can be grown if intensive measures to control wind erosion are used.

3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams. These soils are highly erodible. Crops can be grown if intensive measures to control wind erosion are used.

- 4L. Calcareous loams, silt loams, clay loams, and silty clay loams. These soils are erodible. Crops can be grown if intensive measures to control wind erosion are used.

4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay. These soils are moderately erodible. Crops can be grown if measures to control wind erosion are used.

5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material. These soils are slightly erodible. Crops can be grown if measures to control wind erosion are used.

6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay. These soils are very slightly erodible. Crops can be grown if ordinary measures to control wind erosion are used.

7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material. These soils are very slightly erodible. Crops can be grown if ordinary measures to control wind erosion are used.

8. Soils that are not subject to wind erosion because of coarse fragments on the surface or because of surface wetness.

*Organic matter* is the plant and animal residue in the soil at various stages of decomposition. In table 13, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained or increased by returning crop residue to the soil. Organic matter affects the available water capacity, infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

## Soil and Water Features

Table 14 gives estimates of various water features, and table 15 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

*Hydrologic soil groups* are used to estimate runoff from precipitation. Soils not protected by vegetation are assigned to one of four groups. They are grouped according to the infiltration of water when the soils are thoroughly wet and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained

sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

*Flooding*, the temporary inundation of an area, is caused by overflowing streams, by runoff from adjacent slopes, or by tides. Shallow water standing or flowing for short periods after rainfall or snowmelt is not considered flooding, nor is standing water in swamps and marshes or in closed depressional areas.

Table 14 gives the frequency and duration of flooding and the time of year when flooding is most likely. Frequency, duration, and probable period of flooding are estimated. Frequency is expressed as none, rare, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions; *occasional* that it occurs, on the average, once or less in 2 years; and *frequent* that it occurs, on the average, more than once in 2 years. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 days to 1 month, and *very long* if more than 1 month. Probable dates are expressed in months.

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and absence of distinctive horizons that form in soils that are not subject to flooding.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that

delineate flood-prone areas at specific flood frequency levels.

*High water table* (seasonal) is the highest level of a saturated zone in the soil in most years. The depth to a seasonal high water table applies to undrained soils. The estimates are based mainly on the evidence of a saturated zone, namely grayish colors or mottles in the soil. Indicated in table 14 are the depth to the seasonal high water table; the kind of water table—that is, perched or apparent; and the months of the year that the water table commonly is high. A water table that is seasonally high for less than 1 month is not indicated in table 14.

An *apparent* water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. A *perched* water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

The two numbers in the column "High water table" indicate the normal range in depth to a saturated zone. Depth is given to the nearest half foot. The first numeral in the range indicates the highest water level. "More than 6.0" indicates that the water table is below a depth of 6 feet or that it is within a depth of 6 feet for less than a month.

*Depth to bedrock* is given in table 15 if bedrock is within a depth of 5 feet. The depth is based on many soil borings and on observations during soil mapping. The rock is either soft or hard. If the rock is soft or fractured, excavations can be made with trenching machines, backhoes, or small rippers. If the rock is hard or massive, blasting or special equipment generally is needed for excavation.

*Cemented pans* are cemented or indurated subsurface layers within a depth of 5 feet. Such pans cause difficulty in excavation. Pans are classified as thin or thick. A thin pan is less than 3 inches thick if continuously indurated or less than 18 inches thick if discontinuous or fractured. Excavations can be made by trenching machines, backhoes, or small rippers. A thick pan is more than 3 inches thick if continuously indurated or more than 18 inches thick if discontinuous or fractured. Such a pan is so thick or massive that blasting or special equipment is needed in excavation.

*Potential frost action* is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the

freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage mainly to pavements and other rigid structures.

*Risk of corrosion* pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion

of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors creates a severe corrosion environment. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion is also expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.





# Classification of the Soils

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The system of soil classification used by the National Cooperative Soil Survey has six categories (10). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 16 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

**ORDER.** Eleven soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is *Aridisol*.

**SUBORDER.** Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is *Argid* (*Arg*, meaning clay, plus *id*, from *Aridisol*).

**GREAT GROUP.** Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is *Durargids* (*Dur*, meaning duripan, plus *argid*, the suborder of the *Aridisols* that has an argillic horizon).

**SUBGROUP.** Each great group has a *typic* subgroup. Other subgroups are *intergrades* or *extragrades*. The *typic* is the central concept of the great group; it is not necessarily the most extensive. *Intergrades* are transitions to other orders, suborders, or great groups. *Extragrades* have some properties that are not representative of the great group but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective

*Typic* identifies the subgroup that typifies the great group. An example is *Typic Durargids*.

**FAMILY.** Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineral content, temperature regime, depth of the root zone, consistence, moisture equivalent, slope, and permanent cracks. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is *loamy, mixed, mesic, shallow Typic Durargids*.

**SERIES.** The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. The texture of the surface layer or of the underlying material can differ within a series.

## Taxonomic Units and Their Morphology

In this section, each taxonomic unit recognized in the survey area is described. The descriptions are arranged in alphabetic order.

Characteristics of the soil and the material in which it formed are identified for each unit. A *pedon*, a small three-dimensional area of soil, that is typical of the unit in the survey area is described. The detailed description of each soil horizon follows standards in the *Soil Survey Manual* (8). Many of the technical terms used in the descriptions are defined in *Soil Taxonomy* (10). Unless otherwise stated, matrix colors in the descriptions are for dry soil. Following the pedon description is the range of important characteristics of the soils in the unit.

The map units of each taxonomic unit are described in the section "Detailed Soil Map Units."

## Abgese Series

*Depth class:* Very deep

*Drainage class:* Well drained

*Position on landscape:* Alluvial plains, dissected fan terraces

*Parent material:* Mixed alluvium

*Slope:* 2 to 40 percent

*Elevation:* 2,600 to 4,000 feet

*Average annual precipitation:* 8 to 10 inches

*Average annual air temperature:* 49 to 52 degrees F

*Frost-free period:* 110 to 140 days

**Taxonomic class:** Fine-loamy, mixed, mesic Xerollic Haplargids

### Typical Pedon

A—0 to 6 inches; brown (10YR 5/3) loamy sand, dark grayish brown (10YR 4/2) moist; single grain; loose; many very fine, fine, and medium roots; moderately alkaline; clear smooth boundary.

Bt—6 to 15 inches; pale brown (10YR 6/3) sandy clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; many moderately thick clay films on faces of peds; 10 percent pebbles; moderately alkaline; abrupt smooth boundary.

Btk—15 to 31 inches; light yellowish brown (10YR 6/4) gravelly sandy loam, yellowish brown (10YR 5/4) moist; moderate medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; few thin clay films bridging sand grains; 15 percent pebbles; slightly effervescent; moderately alkaline; abrupt smooth boundary.

Bk—31 to 60 inches; very pale brown (10YR 7/3) gravelly sandy loam, yellowish brown (10YR 5/4) moist; massive; hard, firm; few very fine and fine roots; 15 percent pebbles; violently effervescent; moderately alkaline.

### Typical Pedon Location

*Map unit in which located:* Abgese loamy sand, 2 to 8 percent slopes

*Location in survey area:* About 12 miles southwest of Grand View, about 200 feet south and 1,800 feet east of the northwest corner of sec. 25, T. 6 S., R. 1 E.

### Range in Characteristics

*Depth to secondary lime:* 12 to 16 inches

*A horizon:*

Value—5 to 7 dry, 3 to 5 moist

Chroma—2 or 3 dry or moist

*Bt horizon:*

Texture—sandy clay loam, loam, clay loam, or gravelly sandy loam

Content of pebbles—0 to 15 percent

*Bk horizon:*

Texture—gravelly sandy loam, gravelly coarse sandy loam, very gravelly coarse sandy loam, or very gravelly loamy sand

Content of gravel—15 to 50 percent

## Arbidge Series

*Depth class:* Moderately deep (to a duripan)

*Drainage class:* Well drained

*Position on landscape:* Alluvial plains, fan terraces, stream terraces

*Parent material:* Mixed alluvium

*Slope:* 1 to 8 percent

*Elevation:* 3,000 to 3,700 feet

*Average annual precipitation:* 9 to 10 inches

*Average annual air temperature:* 50 to 52 degrees F

*Frost-free period:* 120 to 130 days

**Taxonomic class:** Fine-loamy, mixed, mesic Xerollic Durargids

### Typical Pedon

A—0 to 8 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; weak fine granular structure; slightly hard, friable; many very fine roots; mildly alkaline; clear smooth boundary.

Bt1—8 to 17 inches; light yellowish brown (10YR 6/4) loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; hard, firm, sticky and slightly plastic; common very fine roots; common very fine tubular pores; many thin clay films on faces of peds; mildly alkaline; clear smooth boundary.

Bt2—17 to 21 inches; light yellowish brown (10YR 6/4) loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; common very fine tubular pores; few thin clay films bridging mineral grains; mildly alkaline; clear smooth boundary.

Bk—21 to 27 inches; white (10YR 8/2) fine sandy loam, pale brown (10YR 6/3) moist; massive; very hard, firm, slightly sticky and nonplastic; few very fine roots; common very fine tubular pores; 10 percent durinodes; strongly effervescent; moderately alkaline; abrupt smooth boundary.

Bkqm—27 to 34 inches; white (10YR 8/2), indurated duripan; very hard, extremely firm; 3-millimeter-thick laminar cap at surface; roots matted at top; violently effervescent; moderately alkaline; clear smooth boundary.

B'k—34 to 42 inches; white (10YR 8/2) fine sandy loam, very pale brown (10YR 7/3) moist; massive; slightly hard, friable; violently effervescent; moderately alkaline; gradual smooth boundary.

C—42 to 60 inches; very pale brown (10YR 7/3) sandy loam, pale brown (10YR 6/3) moist; massive; slightly hard, friable; slightly effervescent; moderately alkaline.

#### Typical Pedon Location

*Map unit in which located:* Arbidge fine sandy loam, 1 to 4 percent slopes

*Location in survey area:* About 11 miles southeast of Bruneau, about 350 feet south and 550 feet west of the northeast corner of sec. 20, T. 6 S., R. 11 E.

#### Range in Characteristics

*Depth to duripan:* 20 to 40 inches

*Content of clay in particle-size control section:* 20 to 30 percent

##### A horizon:

Value—4 to 6 dry, 2 to 4 moist

Chroma—2 or 3 dry or moist

##### Bt horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—loam, clay loam, or sandy clay loam

##### Bk horizon:

Value—7 or 8 dry, 5 or 6 moist

Chroma—2 or 3 dry or moist

Texture—fine sandy loam, sandy loam, or sandy clay loam

##### Bkq horizon:

Value—7 or 8 dry, 5 to 8 moist

Chroma—2 to 4 dry or moist

Texture—sandy loam, fine sandy loam, loam, gravelly sandy loam, or gravelly fine sandy loam

Content of pebbles—0 to 20 percent

### Badge Series

*Depth class:* Deep

*Drainage class:* Well drained

*Position on landscape:* Foothills, valley sides

*Parent material:* Alluvium derived from volcanic rock

*Slope:* 20 to 70 percent

*Elevation:* 4,000 to 5,500 feet

*Average annual precipitation:* 12 to 15 inches

*Average annual air temperature:* 45 to 48 degrees F

*Frost-free period:* 85 to 110 days

**Taxonomic class:** Loamy-skeletal, mixed, mesic Typic Argixerolls

#### Typical Pedon

A1—0 to 3 inches; grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine, fine, and medium roots; many fine interstitial pores; neutral; clear smooth boundary.

A2—3 to 11 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine, fine, and medium roots; many fine tubular pores; mildly alkaline; clear smooth boundary.

AB—11 to 21 inches; brown (7.5YR 5/4) gravelly loam, dark brown (7.5YR 4/3) moist; weak coarse subangular blocky structure; hard, firm, sticky and slightly plastic; many very fine, fine, and medium roots; many fine tubular pores; mildly alkaline; clear smooth boundary.

Bt1—21 to 43 inches; pinkish gray (7.5YR 6/2) very gravelly clay loam, dark brown (7.5YR 4/3, broken) and brown (7.5YR 5/4, crushed) moist; moderate fine and medium angular blocky structure; hard, firm, sticky and plastic; common fine and medium roots; many fine tubular pores; common thin clay films on faces of peds, on rock fragments, and in pores; mildly alkaline; gradual smooth boundary.

Bt2—43 to 54 inches; pinkish gray (7.5YR 6/2) very stony clay loam, dark brown (7.5YR 4/3, broken) and brown (7.5YR 5/3, crushed) moist; massive; hard, firm, sticky and plastic; few fine roots; many fine tubular pores; common thin clay films; mildly alkaline; abrupt smooth boundary.

R—54 inches; unweathered latite.

#### Typical Pedon Location

*Map unit in which located:* Badge-Immiant-Rubble land complex, 20 to 70 percent slopes

*Location in survey area:* About 8 miles northeast of Mountain Home, about 1,320 feet south and 100 feet west of the northeast corner of sec. 23, T. 2 S., R. 7 E.

**Range in Characteristics***Depth to bedrock:* 40 to 60 inches*Thickness of mollic epipedon:* 10 to 16 inches*A horizon:*

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

*Bt horizon:*

Hue—7.5YR or 10YR

Value—4 to 6 dry, 2 to 4 moist

Chroma—2 to 4 dry or moist

Texture—very gravelly loam, very gravelly clay loam, very cobbly clay loam, or very stony clay loam

Content of rock fragments—35 to 50 percent

**Bahem Series***Depth class:* Very deep*Drainage class:* Well drained*Position on landscape:* Basalt plains, alluvial plains*Parent material:* Loess, silty alluvium*Slope:* 0 to 8 percent*Elevation:* 2,400 to 3,100 feet*Average annual precipitation:* 7 to 9 inches*Average annual air temperature:* 50 to 53 degrees F*Frost-free period:* 120 to 150 days**Taxonomic class:** Coarse-silty, mixed, mesic Xerollic Calciorthids**Typical Pedon**

A—0 to 3 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; weak thin platy structure; slightly hard, friable; moderately alkaline; clear smooth boundary.

Bw—3 to 15 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; weak medium angular blocky structure; slightly hard, friable; slightly effervescent; moderately alkaline; clear smooth boundary.

Bk1—15 to 34 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; massive; hard, friable; about 15 percent strongly cemented krotovinas (cicada nodules); strongly effervescent; strongly alkaline; clear smooth boundary.

Bk2—34 to 46 inches; pale brown (10YR 6/3) very fine sandy loam, dark brown (10YR 4/3) moist; massive; slightly hard, friable; violently effervescent; few fine lime veins; strongly alkaline; clear smooth boundary.

C—46 to 60 inches; light yellowish brown (10YR 6/4)

fine sandy loam, dark yellowish brown (10YR 4/4) moist; massive; hard, friable; strongly effervescent; strongly alkaline.

**Typical Pedon Location***Map unit in which located:* Bahem silt loam, 0 to 4 percent slopes*Location in survey area:* About 12 miles southeast of Mountain Home, about 1,900 feet north and 235 feet west of the southeast corner of sec. 5, T. 5 S., R. 5 E.**Range in Characteristics***Particle-size control section:*

Texture—very fine sandy loam to silt loam

Content of clay—9 to 18 percent

Content of durinodes—0 to 15 percent

*A horizon:*

Value—4 or 5 moist

Chroma—2 or 3 dry or moist

*Bk horizon:*

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Texture—silt loam or very fine sandy loam

Other characteristics—strata of fine sandy loam or loamy fine sand below a depth of 30 inches in some pedons

**Baldock Series***Depth class:* Very deep*Drainage class:* Poorly drained*Position on landscape:* Flood plains*Parent material:* Mixed alluvium*Slope:* 0 to 2 percent*Elevation:* 2,300 to 2,600 feet*Average annual precipitation:* 6 to 9 inches*Average annual air temperature:* 51 to 53 degrees F*Frost-free period:* 140 to 150 days**Taxonomic class:** Fine-loamy, mixed (calcareous), mesic Typic Haplaquepts**Typical Pedon**

Ap—0 to 7 inches; light brownish gray (10YR 6/2) loam, dark grayish brown (10YR 4/2) moist; weak medium granular structure; slightly hard, friable, slightly sticky and slightly plastic; slightly effervescent; moderately alkaline; abrupt smooth boundary.

Bk1—7 to 12 inches; light brownish gray (10YR 6/2) silt loam, dark grayish brown (10YR 4/2) moist; many

medium distinct light gray (2.5Y 7/3) mottles, light brownish gray (2.5Y 6/3) moist; weak medium subangular blocky structure; hard, firm, sticky and plastic; strongly effervescent; strongly alkaline; clear smooth boundary.

Bk2—12 to 24 inches; white (10YR 8/2) loam, grayish brown (10YR 5/2) moist; massive; soft, very friable; strongly effervescent; strongly alkaline; clear smooth boundary.

Bk3—24 to 42 inches; white (10YR 8/2) loam, very pale brown (10YR 7/3) moist; common fine faint white (2.5Y 8/2) mottles, light gray (2.5Y 7/2) moist; massive; hard, firm, sticky and plastic; violently effervescent; strongly alkaline; clear smooth boundary.

C—42 to 60 inches; very pale brown (10YR 7/3) loam, brown (10YR 5/3) moist; common medium distinct dark brown (7.5YR 4/4) mottles; massive; hard, firm, slightly sticky and slightly plastic; violently effervescent; strongly alkaline.

#### Typical Pedon Location

*Map unit in which located:* Baldock loam, 0 to 2 percent slopes

*Location in survey area:* About 3 miles northwest of Grand View, about 1,780 feet south and 2,630 feet east of the northwest corner of sec. 5, T. 5 S., R. 3 E.

#### Range in Characteristics

*Depth to mottles:* 7 to 20 inches

*Depth to water table:* 18 to 36 inches from April through November

*Particle-size control section (10- to 40-inch):*

Texture—dominantly loam or silt loam, but strata of silty clay loam, very fine sandy loam, or fine sandy loam in some pedons

Content of clay—19 to 27 percent

Content of pebbles—less than 15 percent

*A horizon:*

Hue—10YR or 2.5Y

Value—5 or 6 dry, 3 or 4 moist

Chroma—1 or 2 dry or moist

*Bk horizon:*

Hue—10YR or 2.5Y

Value—6 to 8 dry, 4 to 7 moist

Chroma—1 or 2 dry or moist

Texture—silty clay loam, silt loam, or loam

*C horizon:*

Hue—10YR or 2.5Y

Value—7 or 8 dry, 5 to 7 moist

Chroma—2 or 3 dry or moist

Texture—loam, very fine sandy loam, or fine sandy loam

Other characteristics—strongly contrasting layers of loamy sand, sand, or very gravelly material below a depth of 40 inches in some pedons

#### Bauscher Series

*Depth class:* Very deep

*Drainage class:* Well drained

*Position on landscape:* Granitic hills, alluvial terraces

*Parent material:* Alluvium derived from igneous rock

*Slope:* 2 to 60 percent

*Elevation:* 4,000 to 6,400 feet

*Average annual precipitation:* 14 to 18 inches

*Average annual air temperature:* 40 to 45 degrees F

*Frost-free period:* 60 to 80 days

**Taxonomic class:** Fine-loamy, mixed, frigid Pachic Ultic Argixerolls

#### Typical Pedon

A—0 to 7 inches; brown (10YR 5/3) loam, very dark brown (10YR 2/2) moist; weak thin and medium platy structure; friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine and fine interstitial pores; slightly acid; clear smooth boundary.

BA—7 to 29 inches; brown (10YR 5/3) loam, very dark grayish brown (10YR 3/2) moist; moderate medium and coarse prismatic structure parting to moderate medium subangular blocky; very friable, slightly sticky and slightly plastic; common very fine and fine roots and few medium roots; many very fine and fine tubular pores; slightly acid; clear smooth boundary.

Bt1—29 to 42 inches; brown (10YR 5/3) clay loam, dark grayish brown (10YR 3/3) moist; moderate medium subangular blocky structure; friable, sticky and plastic; few fine and medium roots; common very fine and fine and few medium tubular pores; few thin clay films on faces of peds and lining pores; neutral; clear smooth boundary.

Bt2—42 to 49 inches; light yellowish brown (10YR 6/4) clay loam, dark yellowish brown (10YR 4/6) moist; moderate medium subangular blocky structure; friable, sticky and plastic; few fine and medium roots; common fine and few medium tubular pores; few thin clay films on faces of peds and lining pores; neutral; clear smooth boundary.

C—49 to 60 inches; very pale brown (10YR 7/4) sandy

loam, strong brown (7.5YR 5/6) moist; massive; very firm; few fine and medium roots; neutral.

#### Typical Pedon Location

*Map unit in which located:* Simonton-Bauscher loams, 2 to 20 percent slopes

*Location in survey area:* About 25 miles northwest of Mountain Home, about 330 feet north and 330 feet east of the southwest corner of sec. 20, T. 2 S., R. 11 E.

#### Range in Characteristics

*Thickness of mollic epipedon:* 20 to 30 inches

##### A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

##### BA and Bt horizons:

Hue—10YR or 7.5YR

Value—5 or 6 dry, 3 to 5 moist

Chroma—3 to 6 dry or moist

Texture—clay loam or loam

##### C horizon:

Texture—gravelly coarse sandy loam to sandy loam

#### Taxadjunct Features

In areas of Bauscher soils near Featherville and on Bennett Mountain, the average annual precipitation is more than 18 inches and the mollic epipedon is more than 30 inches thick. These features are outside the range for the Bauscher series; however, they do not significantly affect use and management.

### Bram Series

*Depth class:* Very deep

*Drainage class:* Somewhat poorly drained

*Position on landscape:* Flood plains, stream terraces

*Parent material:* Mixed alluvium

*Slope:* 0 to 2 percent

*Elevation:* 2,300 to 2,700 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 51 to 53 degrees F

*Frost-free period:* 140 to 150 days

**Taxonomic class:** Coarse-silty, mixed, mesic Xerollic Calciorthids

#### Typical Pedon

A—0 to 3 inches; very pale brown (10YR 7/3) silt loam, dark brown (10YR 4/3) moist; weak fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; common fine and few medium

roots; slightly effervescent; strongly alkaline; clear smooth boundary.

Bw1—3 to 11 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 4/3) moist; weak coarse subangular blocky structure; slightly hard, very friable, slightly sticky; common fine and few medium roots; slightly effervescent; strongly alkaline; clear wavy boundary.

Bw2—11 to 21 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky; common fine roots; slightly effervescent; strongly alkaline; clear smooth boundary.

Bw3—21 to 28 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, friable, slightly sticky; few fine roots; slightly effervescent; strongly alkaline; clear smooth boundary.

Bk—28 to 36 inches; very pale brown (10YR 7/3) very fine sandy loam, brown (10YR 4/3) moist; moderate medium platy structure; slightly hard, friable, slightly sticky; few fine roots; strongly effervescent; common soft lime masses; very strongly alkaline; clear smooth boundary.

BC—36 to 45 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 5/3) moist; few fine faint yellowish brown (10YR 5/6 moist) mottles; massive; slightly hard, friable, slightly sticky and slightly plastic; few fine roots; slightly effervescent; very strongly alkaline; clear smooth boundary.

C—45 to 65 inches; white (2.5Y 8/2) loam, brown (10YR 5/3) moist; common fine distinct brown (7.5YR 4/2 moist) mottles; massive; slightly hard, friable, slightly sticky and slightly plastic; violently effervescent; very strongly alkaline.

#### Typical Pedon Location

*Map unit in which located:* Bram silt loam, 0 to 2 percent slopes

*Location in survey area:* About 5 miles southwest of Bruneau, about 300 feet south and 2,100 feet east of the northwest corner of sec. 5, T. 7 S., R. 5 E.

#### Range in Characteristics

*Depth to secondary lime:* 15 to 35 inches

*Depth to mottles:* 25 to 40 inches

*Depth to water table:* 36 to 60 inches

*Content of clay in particle-size control section:* 12 to 17 percent

##### A horizon:

Value—5 or 6 dry

Chroma—2 or 3 dry or moist

*Bw horizon:*

Hue—10YR or 2.5Y

Value—6 or 7 dry, 4 or 5 moist

*Bk horizon:*

Value—6 or 7 dry, 4 or 5 moist

Chroma—3 or 4 dry or moist

*C horizon:*

Hue—10YR or 2.5Y

Value—6 to 8 dry, 4 to 6 moist

Chroma—2 or 3 dry or moist

Texture—silt loam or loam

### ***Bramwell Series***

*Depth class:* Very deep

*Drainage class:* Somewhat poorly drained

*Position on landscape:* Stream terraces

*Parent material:* Mixed alluvium

*Slope:* 0 to 1 percent

*Elevation:* 2,300 to 2,800 feet

*Average annual precipitation:* 6 to 8 inches

*Average annual air temperature:* 51 to 53 degrees F

*Frost-free period:* 140 to 150 days

**Taxonomic class:** Fine-silty, mixed, mesic Aquic  
Calciorthids

#### **Typical Pedon**

Ap—0 to 9 inches; white (10YR 8/1) silty clay loam, grayish brown (10YR 5/2) moist; weak medium platy structure; very hard, firm, sticky and plastic; violently effervescent; moderately alkaline; abrupt smooth boundary.

Bk1—9 to 21 inches; white (2.5Y 8/2) silty clay loam, pale brown (10YR 6/3) moist; weak thick platy structure; hard, firm, sticky and plastic; strongly effervescent; moderately alkaline; clear smooth boundary.

Bk2—21 to 30 inches; white (2.5Y 8/2) silt loam, light yellowish brown (2.5Y 6/4) moist; common medium faint pale yellow (2.5Y 8/4) mottles, olive yellow (2.5Y 6/6) moist; weak fine granular structure; slightly hard, friable, sticky and plastic; violently effervescent; moderately alkaline; gradual smooth boundary.

Bk3—30 to 44 inches; white (10YR 8/2) silt loam, very pale brown (10YR 7/4) moist; weak moderate granular structure; slightly hard, friable, sticky and plastic; strongly effervescent; moderately alkaline; gradual smooth boundary.

2C—44 to 60 inches; stratified silt loam, loam, and fine sandy loam; strongly effervescent; moderately alkaline.

#### **Typical Pedon Location**

*Map unit in which located:* Bramwell silty clay loam, 0 to 1 percent slopes

*Location in survey area:* About 2 miles northwest of Grand View, about 2,625 feet north and 2,620 feet west of the southeast corner of sec. 8, T. 5 S., R. 3 E.

#### **Range in Characteristics**

*Effervescence:* Slightly effervescent or strongly effervescent

*Depth to water table:* 24 to 40 inches

*A horizon:*

Hue—10YR or 2.5Y

Value—7 or 8 dry, 4 or 5 moist

Chroma—1 to 3 dry or moist

*Bk horizon:*

Hue—2.5Y or 10YR

Value—7 or 8 dry, 5 to 7 moist

Chroma—2 to 4 dry or moist

Texture—silt loam or silty clay loam

### ***Brinegar Series***

*Depth class:* Very deep

*Drainage class:* Moderately well drained

*Position on landscape:* Low terraces

*Parent material:* Alluvium derived from coarse-grained intermediate igneous rock

*Slope:* 0 to 4 percent

*Elevation:* 5,000 to 5,300 feet

*Average annual precipitation:* 14 to 16 inches

*Average annual air temperature:* 40 to 43 degrees F

*Frost-free period:* 65 to 75 days

**Taxonomic class:** Fine-loamy, mixed, frigid Pachic Ultic  
Argixerolls

#### **Typical Pedon**

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) loam, black (10YR 2/1) moist; moderate fine granular structure; slightly hard, friable, sticky and slightly plastic; many very fine and common fine roots; common very fine and fine irregular pores; slightly acid; abrupt smooth boundary.

A—8 to 21 inches; dark grayish brown (10YR 4/2) loam, black (10YR 2/1) moist; weak medium subangular

blocky structure; slightly hard, friable, sticky and plastic; many very fine roots; common very fine and fine irregular pores; slightly acid; abrupt wavy boundary.

BA—21 to 25 inches; very pale brown (10YR 7/3) loam, yellowish brown (10YR 5/4) moist; weak coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; many very fine and common fine irregular pores and few fine tubular pores; slightly acid; abrupt wavy boundary.

Bt1—25 to 31 inches; pale brown (10YR 6/3) clay loam, dark brown (10YR 4/3) moist; moderate coarse prismatic structure; very hard, very firm, very sticky and very plastic; many moderately thick clay films on faces of peds; few very fine roots; few very fine irregular pores and common very fine tubular pores; slightly acid; gradual irregular boundary.

Bt2—31 to 39 inches; pale brown (10YR 6/3) sandy clay loam, dark yellowish brown (10YR 4/4) moist; common fine faint brownish yellow (10YR 6/6) mottles, yellowish brown (10YR 5/6) moist; strong coarse subangular blocky structure; hard, firm, sticky and plastic; few very fine roots; few very fine irregular pores and common very fine tubular pores; many moderately thick clay films on faces of peds; neutral; clear wavy boundary.

Bt3—39 to 47 inches; light yellowish brown (10YR 6/4) sandy clay loam, brown (10YR 4/3) moist; common fine faint reddish yellow (7.5YR 6/6) mottles, strong brown (7.5YR 5/6) moist; many fine distinct manganese stains; weak medium subangular blocky structure; hard, firm, sticky and slightly plastic; few very fine irregular pores and common very fine and fine tubular pores; common thin clay films on faces of peds; neutral; clear wavy boundary.

2C—47 to 60 inches; very pale brown (10YR 8/3) silty clay loam, yellowish brown (10YR 5/4) moist; many medium distinct reddish yellow (7.5YR 7/6) moist mottles; massive; very hard, firm, sticky and plastic; common very fine irregular pores; neutral.

#### Typical Pedon Location

*Map unit in which located:* Brinegar loam, 0 to 4 percent slopes

*Location in survey area:* About 6 miles west of Hill City, about 2,700 feet north and 540 feet east of the southwest corner of sec. 4, T. 2 S., R. 11 E.

#### Range in Characteristics

*Depth to water table:* 36 to more than 60 inches

*Depth to mottles:* 30 to 45 inches

*Base saturation:* 50 to 75 percent

*Reaction:* Slightly acid or neutral

#### A horizon:

Value—3 or 4 dry, 2 or 3 moist

Chroma—1 or 2 dry or moist

#### Bt horizon:

Value—4 to 6 dry, 2 to 4 moist

Chroma—2 to 4 dry or moist

Texture—loam, sandy clay loam, or clay loam

### Broad Canyon Series

*Depth class:* Deep

*Drainage class:* Well drained

*Position on landscape:* Mountainsides

*Parent material:* Alluvium and colluvium derived from intermediate intrusive rock

*Slope:* 25 to 70 percent

*Elevation:* 5,000 to 7,800 feet

*Average annual precipitation:* 25 to 32 inches

*Average annual air temperature:* 39 to 43 degrees F

*Frost-free season:* 50 to 60 days

**Taxonomic class:** Loamy-skeletal, mixed Typic Cryoborolls

#### Typical Pedon

O—2 inches to 0; forest litter that includes Douglas fir needles.

A1—0 to 3 inches; grayish brown (10YR 5/2) gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; weak very fine granular structure; soft, friable; common fine and few medium roots; common very fine tubular and interstitial pores; 15 percent pebbles; slightly acid; clear wavy boundary.

A2—3 to 9 inches; brown (10YR 5/3) gravelly sandy loam, dark brown (10YR 3/3) moist; weak very fine granular structure; soft, friable, slightly sticky; common fine and few medium roots; common very fine tubular and interstitial pores; 15 percent pebbles; slightly acid; clear wavy boundary.

Bw—9 to 15 inches; pale brown (10YR 6/3) gravelly sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, friable, slightly sticky; few fine and medium roots; 15 percent pebbles; slightly acid; clear wavy boundary.

C1—15 to 33 inches; light gray (10YR 7/2) very gravelly coarse sandy loam, dark grayish brown (10YR 4/2) moist; massive; soft, friable; few fine and medium roots; 30 percent pebbles and 10 percent cobbles; slightly acid; gradual wavy boundary.



C2—33 to 50 inches; light gray (10YR 7/2) very gravelly loamy sand, brown (10YR 5/3) moist; massive; very friable; few fine and medium roots; 40 percent pebbles and 20 percent cobbles; moderately acid; clear smooth boundary.

R—50 inches; weathered granodiorite.

### Typical Pedon Location

*Map unit in which located:* Graylock-Broad Canyon complex, 40 to 70 percent slopes

*Location in survey area:* About 5 miles southeast of Featherville, about 1,700 feet east and 2,500 feet south of the northwest corner of sec. 30, T. 3 N., R. 11 E.

### Range in Characteristics

*Thickness of mollic epipedon:* 9 to 15 inches

*Depth to bedrock:* 40 to 60 inches

*Base saturation:* 50 to 75 percent

*Content of rock fragments in particle-size control section:* 35 to 60 percent

#### A horizon:

Value—3 to 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

#### Bw horizon:

Value—3 or 4 moist

Chroma—2 or 3 dry or moist

Content of pebbles—15 to 50 percent

#### C horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Texture—very gravelly sandy loam, very gravelly coarse sandy loam, very gravelly loamy sand, or very gravelly loamy coarse sand

Content of pebbles—20 to 60 percent

Content of cobbles—0 to 15 percent

### Taxadjunct Features

The Broad Canyon soils in this survey area do not have clay films in the B horizon. This feature is outside the range for the series; however, it does not significantly affect use and management.

## Brownlee Series

*Depth class:* Very deep

*Drainage class:* Well drained

*Position on landscape:* Fan terraces, foothills, stream terraces

*Parent material:* Alluvium derived from igneous rock

*Slope:* 2 to 50 percent

*Elevation:* 3,300 to 5,000 feet

*Average annual precipitation:* 15 to 18 inches

*Average annual air temperature:* 45 to 49 degrees F

*Frost-free period:* 85 to 120 days

**Taxonomic class:** Fine-loamy, mixed, mesic Ultic Argixerolls

### Typical Pedon

A1—0 to 10 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; strong thick platy structure parting to strong thin platy; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; common very fine tubular pores; slightly acid; abrupt smooth boundary.

A2—10 to 19 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; moderate very thick platy structure parting to moderate thick platy; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine and few fine tubular pores; neutral; clear smooth boundary.

Bt1—19 to 28 inches; light yellowish brown (10YR 6/4) loam, brown (7.5YR 5/4) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; few very fine roots; common very fine and few fine and medium tubular pores; many moderately thick clay films lining pores; neutral; clear smooth boundary.

Bt2—28 to 48 inches; reddish yellow (7.5YR 6/6) clay loam, yellowish red (5YR 5/6) moist; moderate fine subangular blocky structure; hard, firm, sticky and plastic; few very fine roots; common very fine and few fine tubular pores; common moderately thick clay films on faces of peds and in pores; 10 to 15 percent fine pebbles; neutral; clear smooth boundary.

Bt3—48 to 54 inches; reddish yellow (7.5YR 6/6) sandy clay loam, yellowish red (5YR 5/6) moist; moderate medium subangular blocky structure; hard, firm, sticky and plastic; few very fine roots; common very fine and few fine tubular pores; many moderately thick clay films in pores; neutral; gradual smooth boundary.

Bt4—54 to 60 inches; pink (7.5YR 8/4) gravelly sandy clay loam, brown (7.5YR 5/4) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; common very fine and few fine tubular pores; common thin clay films bridging sand grains and on faces of peds; neutral.

### Typical Pedon Location

*Map unit in which located:* Brownlee loam, 2 to 12 percent slopes

*Location in survey area:* About 11 miles west of Prairie, about 2,580 feet north and 2,325 feet east of the southwest corner of sec. 31, T. 3 N., R. 6 E.

### Range in Characteristics

#### *A horizon:*

Hue—10YR or 7.5YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

#### *Bt horizon:*

Hue—5YR to 10YR

Value—6 to 8 dry

Chroma—3 to 6 dry or moist

Texture—sandy clay loam, clay loam, or loam

Content of pebbles—0 to 15 percent

## Bruncan Series

*Depth class:* Shallow (to a duripan)

*Drainage class:* Well drained

*Position on landscape:* Basalt plains

*Parent material:* Loess and material weathered from silicic volcanic rock

*Slope:* 0 to 12 percent

*Elevation:* 3,200 to 4,400 feet

*Average annual precipitation:* 8 to 10 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free period:* 100 to 130 days

**Taxonomic class:** Loamy, mixed, mesic, shallow Xerollic Durargids

### Typical Pedon

A—0 to 3 inches; very pale brown (10YR 7/3) gravelly loam, brown (10YR 4/3) moist; weak very thick platy structure; soft, very friable; many very fine and fine roots; many fine interstitial pores; 20 percent pebbles and 5 percent cobbles; mildly alkaline; abrupt smooth boundary.

Bt—3 to 12 inches; light yellowish brown (10YR 6/4) gravelly loam, dark yellowish brown (10YR 4/4) moist; weak very coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common medium and fine tubular pores; 15 percent fine pebbles; many thin clay films in pores and bridging sand grains; mildly alkaline; clear wavy boundary.

Btk—12 to 15 inches; light gray (10YR 7/2) very gravelly loam, light yellowish brown (10YR 6/4) moist; moderate medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common fine and very fine roots; common fine and medium tubular pores; 40 percent pebbles; many thin clay films in pores and bridging sand grains; strongly effervescent; moderately alkaline; abrupt wavy boundary.

Bkqm—15 to 27 inches; pinkish white (7.5YR 8/2), indurated duripan, pink (7.5YR 8/4) moist; extremely hard, extremely firm; pan consists of thick plates; 35 percent angular and subangular rock fragments; violently effervescent; moderately alkaline; abrupt wavy boundary.

R—27 inches; vitrophyric rhyolite; coatings of lime and silica at top and in cracks.

### Typical Pedon Location

*Map unit in which located:* Sidlake-Bruncan complex, 1 to 8 percent slopes

*Location in survey area:* About 31 miles southeast of Glenns Ferry, about 1,330 feet north and 300 feet west of the southeast corner of sec. 29, T. 10 S., R. 12 E.

### Range in Characteristics

*Depth to duripan:* 11 to 20 inches

*Depth to bedrock:* 13 to 30 inches

#### *Particle-size control section:*

Content of rock fragments—0 to 25 percent

Content of clay—23 to 30 percent

#### *A horizon:*

Value—6 or 7 dry, 4 or 5 moist

Chroma—3 or 4 dry or moist

#### *Bt horizon:*

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 4 dry or moist

Texture—gravelly loam, gravelly clay loam, or clay loam

Content of pebbles—10 to 20 percent

#### *Btk horizon:*

Value—6 or 7 dry, 4 to 6 moist

Chroma—2 to 4 dry or moist

Content of pebbles—15 to 40 percent

## Buko Series

*Depth class:* Very deep

*Drainage class:* Well drained

*Position on landscape:* Alluvial plains, fan terraces, stream terraces

*Parent material:* Mixed alluvium

*Slope:* 1 to 12 percent

*Elevation:* 2,500 to 4,000 feet

*Average annual precipitation:* 8 to 10 inches

*Average annual air temperature:* 49 to 52 degrees F

*Frost-free period:* 120 to 140 days

**Taxonomic class:** Coarse-loamy over sandy or sandy-skeletal, mixed, mesic Durixerollic Camborthids

#### Typical Pedon

A—0 to 3 inches; pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 3/3) moist; moderate fine granular structure; soft, very friable; many very fine and fine roots; 5 percent pebbles; moderately alkaline; abrupt smooth boundary.

AB—3 to 7 inches; pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 3/3) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky; common fine roots; 5 percent pebbles; moderately alkaline; abrupt smooth boundary.

Bw1—7 to 18 inches; very pale brown (10YR 7/3) loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine roots; 5 percent pebbles; strongly effervescent; moderately alkaline; clear smooth boundary.

Bw2—18 to 24 inches; very pale brown (10YR 7/3) loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky; common fine roots; 5 percent pebbles; violently effervescent; moderately alkaline; abrupt wavy boundary.

2Bkq—24 to 28 inches; variegated very gravelly sand; massive; hard, firm; common fine roots; discontinuous, fractured hardpan 1 inch thick at top; 50 percent pebbles; violently effervescent; moderately alkaline; clear wavy boundary.

2C—28 to 60 inches; variegated extremely cobbly sand; single grain; loose; common fine roots; 40 percent pebbles and 30 percent cobbles; strongly effervescent; moderately alkaline.

#### Typical Pedon Location

*Map unit in which located:* Vanderhoff-Buko-Loray complex, 2 to 20 percent slopes

*Location in survey area:* About 6 miles north of Bruneau, about 600 feet north and 1,600 feet west of the southeast corner of sec. 19, T. 5 S., R. 6 E.

#### Range in Characteristics

*Depth to underlying coarse material:* 20 to 40 inches

*Bw horizon:*

Value—6 or 7 dry, 4 or 5 moist

Chroma—3 or 4 dry or moist

*Bkq horizon:*

Content of calcium carbonate—15 to 25 percent

*2C horizon:*

Content of pebbles and cobbles—45 to 75 percent

#### Chardoton Series

*Depth class:* Deep (to a duripan)

*Drainage class:* Well drained

*Position on landscape:* Alluvial plains, basalt plains, fan terraces

*Parent material:* Mixed alluvium influenced by loess

*Slope:* 0 to 8 percent

*Elevation:* 2,800 to 4,000 feet

*Average annual precipitation:* 9 to 11 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free period:* 110 to 140 days

**Taxonomic class:** Fine, montmorillonitic, mesic Xerollic Paleargids

#### Typical Pedon

A—0 to 4 inches; pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 3/3) moist; weak very thick platy structure; soft, very friable; many fine roots; common very fine and fine interstitial pores; moderately alkaline; clear smooth boundary.

E—4 to 8 inches; light gray (10YR 7/2) loam, brown (10YR 4/3) moist; strong thick platy structure; slightly hard, friable; common very fine and fine roots; many very fine and fine vesicular pores; moderately alkaline; abrupt smooth boundary.

Bt1—8 to 11 inches; pale brown (10YR 6/3) silty clay, brown (10YR 4/3) moist; strong medium prismatic structure; very hard, firm, very sticky and very plastic; common very fine roots; common very fine and fine tubular pores; continuous thick clay films on faces of peds and in pores; moderately alkaline; clear smooth boundary.

Bt2—11 to 28 inches; pale brown (10YR 6/3) silty clay, brown (10YR 4/3) moist; moderate coarse subangular blocky structure; very hard, firm, very sticky and very plastic; few very fine roots; few very fine and fine tubular pores; continuous thick clay films on faces of peds and in pores; moderately alkaline; clear wavy boundary.

**Bt3**—28 to 35 inches; light yellowish brown (10YR 6/4) silty clay, brown (10YR 4/3) moist; strong coarse subangular blocky structure; very hard, firm, very sticky and very plastic; few very fine roots; few very fine and fine tubular pores; many moderately thick clay films on faces of peds; moderately alkaline; clear smooth boundary.

**Btk**—35 to 41 inches; very pale brown (10YR 7/3) silty clay loam, yellowish brown (10YR 5/4) moist; moderate medium subangular blocky structure; hard, firm, very sticky and very plastic; few very fine roots; few very fine tubular pores; many moderately thick clay films on faces of peds; violently effervescent; strongly alkaline; clear smooth boundary.

**Bk**—41 to 55 inches; white (10YR 8/2) loam, light yellowish brown (10YR 6/4) moist; strong thick platy structure; hard, very firm, slightly sticky; few very fine roots; common very fine and fine tubular pores; violently effervescent; moderately alkaline; clear smooth boundary.

**Bkqm**—55 to 60 inches; pinkish white (7.5YR 8/2), moderately cemented duripan, pinkish gray (7.5YR 7/3) moist; very hard, extremely firm; common very fine and fine vesicular pores; violently effervescent; moderately alkaline.

#### Typical Pedon Location

*Map unit in which located:* Power-Chardoton complex, 0 to 4 percent slopes

*Location in survey area:* About 4 miles northwest of King Hill, about 450 feet north and 1,600 feet east of the southwest corner of sec. 33, T. 4 S., R. 10 E.

#### Range in Characteristics

*Depth to duripan:* 40 to 60 inches

*Content of rock fragments:* 0 to 5 percent

*Content of clay in particle-size control section:* 35 to 55 percent

#### A horizon:

Value—5 to 7 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

#### E horizon:

Value—6 or 7 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

#### Bt and Btk horizons:

Value—4 to 7 dry, 4 or 5 moist

Chroma—2 to 4 dry or moist

Texture—silty clay loam, clay loam, silty clay, or clay

#### Bk horizon:

Value—7 or 8 dry, 5 or 6 moist

Chroma—3 or 4 dry or moist

Texture—loam or sandy loam

#### Bkqm horizon:

Hue—7.5YR or 10YR

Value—7 or 8 dry, 6 or 7 moist

Chroma—2 to 4 dry or moist

Other characteristics—highly fractured in some pedons

### Chilcott Series

*Depth class:* Moderately deep (to a duripan)

*Drainage class:* Well drained

*Position on landscape:* Alluvial plains, basalt plains, fan terraces

*Parent material:* Loess and alluvium derived from various kinds of rock

*Slope:* 0 to 12 percent

*Elevation:* 2,900 to 4,400 feet

*Average annual precipitation:* 8 to 12 inches

*Average annual air temperature:* 48 to 51 degrees F

*Frost-free period:* 100 to 130 days

**Taxonomic class:** Fine, montmorillonitic, mesic

Abruptic Xerollic Duragids

#### Typical Pedon (fig. 10)

**A**—0 to 2 inches; light brownish gray (10YR 6/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium granular structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine roots; common very fine and fine tubular pores; mildly alkaline; clear smooth boundary.

**E**—2 to 7 inches; light gray (10YR 7/2) silt loam, dark grayish brown (10YR 4/2) moist; moderate thin platy structure; slightly hard, very friable; common very fine and fine roots; many very fine vesicular pores; mildly alkaline; abrupt smooth boundary.

**Bt**—7 to 17 inches; brown (10YR 5/3) silty clay, dark brown (10YR 4/3) moist; strong medium and coarse subangular blocky structure; hard, firm, very sticky and very plastic; common fine and medium roots; common very fine and fine tubular pores; many thick clay films on faces of peds and lining pores; mildly alkaline; gradual smooth boundary.

**Btk**—17 to 27 inches; light yellowish brown (10YR 6/4) clay loam, yellowish brown (10YR 5/4) moist;

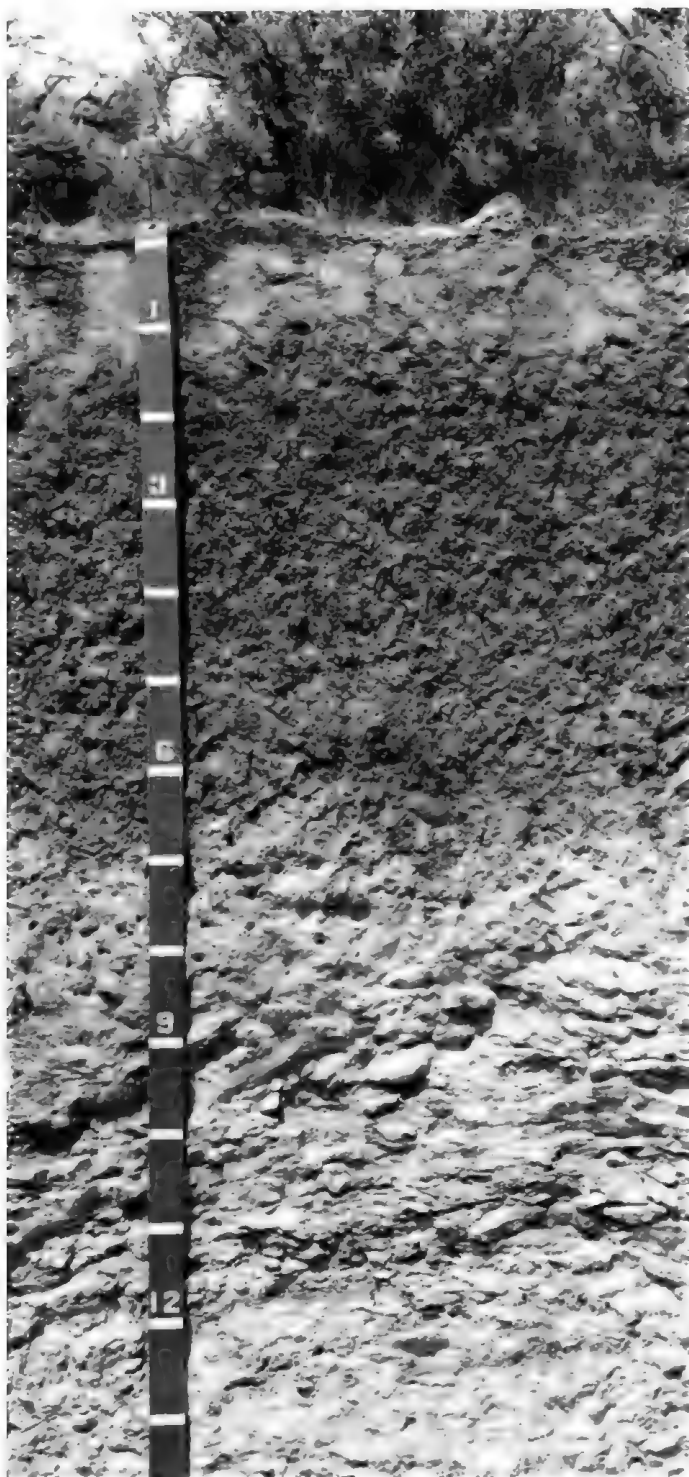


Figure 10.—Profile of Chilcott silt loam in an area of Chilcott-Elijah silt loams, 0 to 12 percent slopes (numerals on tape indicate decimeters). A layer high in content of clay is between depths of 7 and 27 inches (1.5 and 7.0 decimeters), and a hardpan is at a depth of 33 inches (8 decimeters).

moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; few fine and medium roots; common very fine and fine tubular pores; few thin clay films on faces of peds; slightly effervescent; veins of lime in root channels; mildly alkaline; abrupt smooth boundary.

Bkq—27 to 33 inches; very pale brown (10YR 8/3) loam, light yellowish brown (10YR 6/4) moist; moderate fine and medium subangular blocky structure; hard, firm; few fine roots; 10 percent duripan fragments; violently effervescent; moderately alkaline; abrupt smooth boundary.

Bkqm—33 to 39 inches; white (10YR 8/2), indurated duripan, pale brown (10YR 6/3) moist; violently effervescent; moderately alkaline; clear smooth boundary.

B'kq—39 to 67 inches; alternate layers of loam and indurated material that is similar to that of the Bkqm horizon.

#### Typical Pedon Location

*Map unit in which located:* Chilcott-Elijah silt loams, 0 to 12 percent slopes

*Location in survey area:* About 10 miles southwest of Oreana, about 1,520 feet south and 2,340 feet east of the northwest corner of sec. 31, T. 5 S., R. 1 W.

#### Range in Characteristics

*Depth to duripan:* 20 to 40 inches

*Content of pebbles:* 0 to 10 percent

*A and E horizons:*

Value—6 or 7 dry

Chroma—2 or 3 dry or moist

*Bt horizon:*

Value—5 or 6 dry

Chroma—3 or 4 dry or moist

Texture—silty clay loam, silty clay, or clay

*Btk horizon:*

Value—5 to 7 dry

Chroma—3 or 4 dry or moist

Texture—silty clay loam or clay loam

*Bkq horizon:*

Value—6 to 8 dry

Chroma—2 to 4 dry or moist

Texture—sandy loam, loam, or silt loam

Content of duripan fragments—10 to 30 percent

#### Taxadjunct Features

The textural control section of the Chilcott soil in map unit 160 averages 10 to 35 percent coarse fragments,

which is outside the range for the series. This difference, however, does not significantly affect use and management.

### **Colthorp Series**

*Depth class:* Shallow (to a duripan)

*Drainage class:* Well drained

*Position on landscape:* Basalt plains

*Parent material:* Loess and alluvium derived from various kinds of rock

*Slope:* 0 to 20 percent

*Elevation:* 2,900 to 4,400 feet

*Average annual precipitation:* 8 to 12 inches

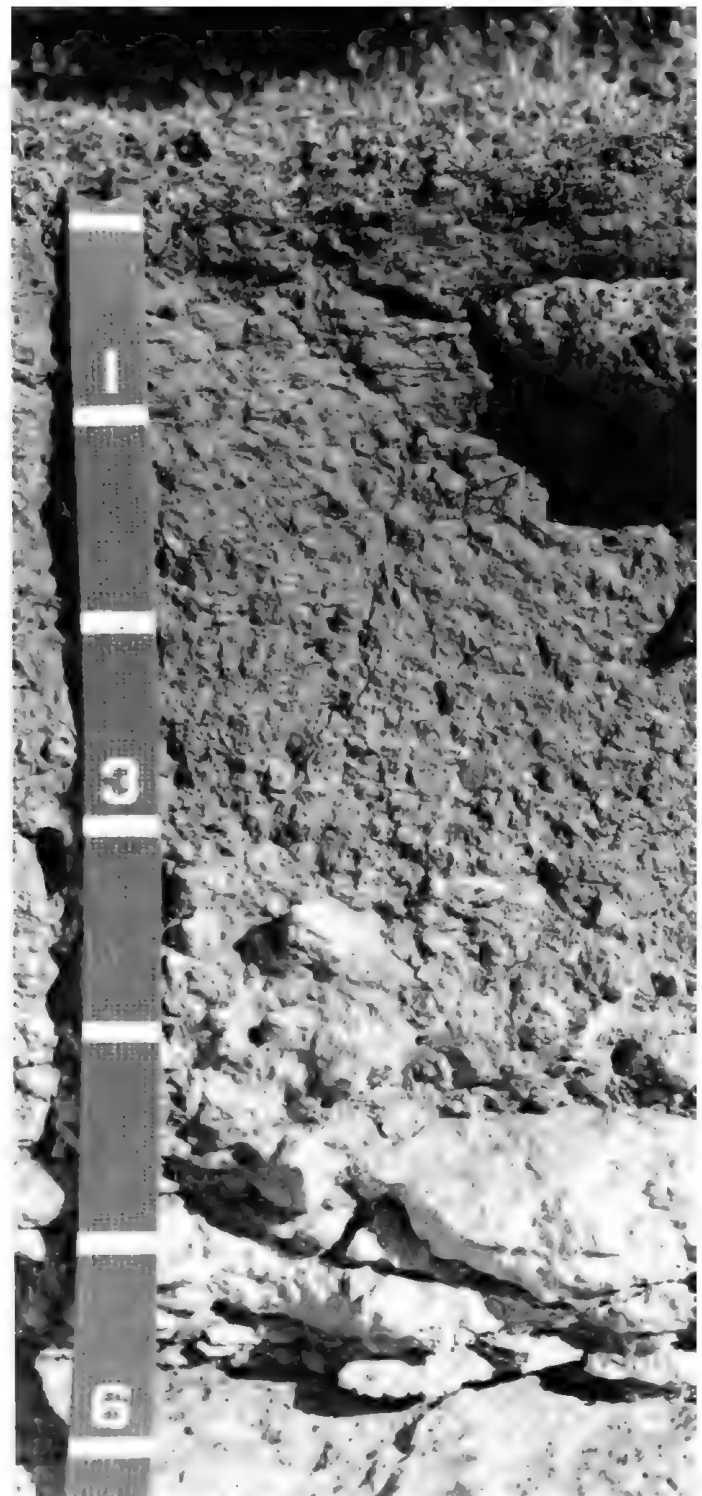
*Average annual air temperature:* 48 to 51 degrees F

*Frost-free period:* 100 to 130 days

**Taxonomic class:** Loamy, mixed, mesic, shallow Xerollic Durargids

#### **Typical Pedon (fig. 11)**

- A—0 to 3 inches; light brownish gray (10YR 6/2) stony silt loam, dark grayish brown (10YR 4/2) moist; strong thick platy structure; slightly hard, friable; mildly alkaline; clear smooth boundary.
- Bt1—3 to 8 inches; brown (10YR 5/3) silty clay loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, firm; mildly alkaline; abrupt smooth boundary.
- Bt2—8 to 10 inches; light yellowish brown (10YR 6/4) silty clay loam, dark yellowish brown (10YR 4/4) moist; weak coarse subangular blocky structure; hard, firm; common moderately thick clay films on faces of peds; mildly alkaline; abrupt smooth boundary.
- Bk1—10 to 12 inches; very pale brown (10YR 7/3) silt loam, dark brown (10YR 4/3) moist; weak coarse subangular blocky structure parting to weak medium subangular blocky; slightly hard, friable; strongly effervescent; moderately alkaline; abrupt smooth boundary.
- Bk2—12 to 18 inches; white (10YR 8/2) silt loam, grayish brown (10YR 5/2) moist; massive; soft, friable; violently effervescent; strongly alkaline; abrupt smooth boundary.
- Bkqm—18 to 23 inches; white (10YR 8/2), indurated duripan, pale brown (10YR 6/3) moist; pan consists of thick plates; root mat at top; violently effervescent; strongly alkaline; abrupt wavy boundary.
- R—23 inches; basalt.



**Figure 11.**—Profile of Colthorp stony silt loam in an area of Colthorp-Kunaton complex, 0 to 8 percent slopes (numerals on tape indicate decimeters). A hardpan at a depth of 12 inches (3 decimeters) overlies basalt.

**Typical Pedon Location**

*Map unit in which located:* Colthorp-Kunaton complex, 0 to 8 percent slopes

*Location in survey area:* About 3 miles west of Mountain Home, about 1,100 feet south and 720 feet west of the northeast corner of sec. 32, T. 3 S., R. 6 E.

**Range in Characteristics**

*Depth to bedrock:* 20 to 40 inches

*Depth to duripan:* 10 to 20 inches

*Content of rock fragments:* 0 to 15 percent

**A horizon:**

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

**Bt horizon:**

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—silt loam, silty clay loam, or clay loam

**Bk horizon:**

Value—6 to 8 dry, 4 to 6 moist

Chroma—2 to 4 dry or moist

**Coski Series**

*Depth class:* Deep

*Drainage class:* Well drained

*Position on landscape:* Mountainsides

*Parent material:* Alluvium and colluvium derived from intermediate intrusive rock

*Slope:* 10 to 60 percent

*Elevation:* 5,000 to 8,000 feet

*Average annual precipitation:* 25 to 35 inches

*Average annual air temperature:* 35 to 40 degrees F

*Frost-free season:* 40 to 60 days

**Taxonomic class:** Coarse-loamy, mixed Typic Cryoborolls

**Typical Pedon**

O—1 inch to 0; forest litter that includes Douglas fir needles.

A—0 to 11 inches; grayish brown (10YR 5/2) gravelly coarse sandy loam, very dark grayish brown (10YR 3/2) moist; weak very fine granular structure; soft, friable; few fine and medium roots; 15 percent fine and medium pebbles; slightly acid; gradual wavy boundary.

Bw—11 to 28 inches; pale brown (10YR 6/3) gravelly coarse sandy loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, friable; common medium and coarse roots; 15 percent fine

and medium pebbles; slightly acid; clear wavy boundary.

C—28 to 42 inches; very pale brown (10YR 7/3) gravelly coarse sandy loam, yellowish brown (10YR 5/4) moist; massive; soft, friable; few medium and coarse roots; 20 percent fine and medium pebbles; slightly acid; clear wavy boundary.

R—42 inches; unweathered granodiorite.

**Typical Pedon Location**

*Map unit in which located:* Broad Canyon-Coski complex, 30 to 60 percent slopes

*Location in survey area:* About 1 mile northwest of Featherville, about 840 feet south and 2,500 feet east of the northwest corner of sec. 4, T. 3 N., R. 10 E.

**Range in Characteristics**

*Depth to bedrock:* 40 to 60 inches

*Thickness of mollic epipedon:* 10 to 15 inches

*Content of rock fragments in particle-size control section:* 10 to 35 percent

**A horizon:**

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

**Bw horizon:**

Value—5 to 7 dry, 4 or 5 moist

Chroma—3 or 4 dry or moist

Texture—sandy loam, coarse sandy loam, or gravelly coarse sandy loam

Content of pebbles—5 to 30 percent

**C horizon:**

Value—6 or 7 dry, 5 or 6 moist

Chroma—3 or 4 dry or moist

Texture—sandy loam, coarse sandy loam, or gravelly coarse sandy loam

Content of pebbles—10 to 35 percent

**Cottle Series**

*Depth class:* Shallow

*Drainage class:* Well drained

*Position on landscape:* Basalt plains and ridges, foothills

*Parent material:* Alluvium and residuum derived from volcanic rock

*Slope:* 2 to 30 percent

*Elevation:* 3,200 to 4,500 feet

*Average annual precipitation:* 9 to 11 inches

*Average annual air temperature:* 48 to 51 degrees F

*Frost-free period:* 110 to 125 days



**Taxonomic class:** Loamy-skeletal, mixed, mesic Lithic Xerollic Haplargids

#### Typical Pedon

A—0 to 4 inches; very pale brown (10YR 8/3) gravelly loam, brown (10YR 5/3) moist; strong thin platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine roots; common fine vesicular pores; 20 percent pebbles and 10 percent cobbles; mildly alkaline; clear smooth boundary.

Bt1—4 to 8 inches; very pale brown (10YR 7/3) very gravelly clay loam, yellowish brown (10YR 5/4) moist; moderate medium subangular blocky structure; slightly hard, very friable, sticky and plastic; common very fine and fine roots; common very fine and fine tubular pores; many moderately thick clay films on faces of peds and in pores; 40 percent pebbles; mildly alkaline; clear smooth boundary.

Bt2—8 to 11 inches; very pale brown (10YR 8/3) very gravelly clay loam, yellowish brown (10YR 5/4) moist; moderate fine subangular blocky structure; hard, firm, sticky and plastic; few fine roots; common fine tubular pores; many moderately thick clay films on faces of peds and in pores; 50 percent pebbles; mildly alkaline; clear wavy boundary.

Btk—11 to 14 inches; pink (7.5YR 8/3) extremely gravelly clay loam, light brown (7.5YR 6/4) moist; weak fine subangular blocky structure; very hard, very firm, sticky and plastic; few fine roots; common fine tubular pores; many moderately thick clay films on faces of peds; 70 percent pebbles; strongly effervescent; mildly alkaline; gradual wavy boundary.

R—14 inches; unweathered vitrophyre bedrock.

#### Typical Pedon Location

*Map unit in which located:* Cottle-Trevino-Rock outcrop complex, 8 to 30 percent slopes

*Location in survey area:* About 32 miles southeast of Glenns Ferry, about 2,120 feet south and 570 feet east of the northwest corner of sec. 32, T. 10 S., R. 12 E.

#### Range in Characteristics

*Depth to bedrock:* 10 to 20 inches

*Particle-size control section:*

Content of rock fragments—35 to 70 percent

Texture—very gravelly loam, very gravelly clay loam, extremely gravelly loam, or extremely gravelly clay loam

Content of clay—25 to 35 percent

#### Cowgil Series

*Depth class:* Very deep

*Drainage class:* Well drained

*Position on landscape:* Alluvial terraces and foothills

*Parent material:* Alluvium derived from volcanic rock

*Slope:* 0 to 50 percent

*Elevation:* 2,500 to 3,900 feet

*Average annual precipitation:* 9 to 10 inches

*Average annual air temperature:* 49 to 52 degrees F

*Frost-free period:* 110 to 140 days

**Taxonomic class:** Loamy-skeletal, mixed, mesic Xerollic Haplargids

#### Typical Pedon

A—0 to 2 inches; pale brown (10YR 6/3) extremely stony sandy loam, dark brown (10YR 3/3) moist; moderate medium granular structure; soft, very friable; many very fine and fine irregular pores; 15 percent of surface covered with stones; 15 percent fine pebbles, 20 percent cobbles, and 25 percent stones; mildly alkaline; abrupt smooth boundary.

AB—2 to 4 inches; light yellowish brown (10YR 6/4) extremely stony sandy loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky; common very fine irregular pores; common thin clay films lining pores and bridging sand grains; 10 percent fine pebbles, 20 percent cobbles, and 25 percent stones; mildly alkaline; abrupt smooth boundary.

Bt1—4 to 12 inches; yellowish brown (10YR 5/4) very gravelly sandy clay loam, dark yellowish brown (10YR 4/4) moist; weak coarse subangular blocky structure; soft, very friable, sticky and plastic; common very fine and fine tubular pores; common thin clay films lining pores and bridging sand grains; 20 percent pebbles, 15 percent cobbles, and 10 percent stones; mildly alkaline; clear wavy boundary.

Bt2—12 to 21 inches; yellowish brown (10YR 5/4) very gravelly sandy clay loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; slightly hard, very friable, sticky and plastic; few very fine and fine tubular pores; common thin clay films lining pores and bridging sand grains; 25 percent pebbles and 20 percent cobbles; mildly alkaline; clear irregular boundary.

2Bw—21 to 27 inches; variegated very gravelly loamy



sand; single grain; loose; many very fine irregular pores; 20 percent fine pebbles, 25 percent cobbles, and 10 percent stones; mildly alkaline; gradual irregular boundary.

**2Bk**—27 to 60 inches; dark gray (2.5Y 4/0) extremely gravelly coarse sand, black (2.5Y 2/0) moist; single grain; loose; many very fine irregular pores; 55 percent fine pebbles, 15 percent cobbles, and 5 percent stones; coatings of lime and silica on underside of rock fragments; strongly effervescent in small spots; moderately alkaline.

### Typical Pedon Location

*Map unit in which located:* Cowgil extremely stony sandy loam, 4 to 20 percent slopes

*Location in survey area:* About 3 miles southeast of King Hill, about 2,620 feet south and 320 feet east of the northwest corner of sec. 29, T. 5 S., R. 11 E.

### Range in Characteristics

*Content of clay in particle-size control section:* 20 to 35 percent

#### *A horizon:*

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

#### *Bt horizon:*

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—very cobbly sandy clay loam, very cobbly clay loam, or very cobbly loam

Content of rock fragments—35 to 60 percent

#### *2Bw and 2Bk horizons:*

Value—4 or 5 dry, 2 to 4 moist

Chroma—0 to 2 dry or moist

Texture—extremely cobbly coarse sand or extremely cobbly loamy sand

Content of rock fragments—60 to 80 percent

### Taxadjunct Features

The lower part of the Cowgil soils in this survey area is dark and has hue of 2.5Y because of a high content of black sand grains. These differences are outside the range for the series; however, they do not significantly affect use and management.

## Davey Series

*Depth class:* Very deep

*Drainage class:* Somewhat excessively drained

*Position on landscape:* Drainageways, fan terraces, stream terraces

*Parent material:* Mixed alluvium

*Slope:* 0 to 40 percent

*Elevation:* 2,300 to 3,500 feet

*Average annual precipitation:* 7 to 9 inches

*Average annual air temperature:* 50 to 52 degrees F

*Frost-free period:* 120 to 150 days

**Taxonomic class:** Sandy, mixed, mesic Xerollic Camborthids

### Typical Pedon

**A1**—0 to 4 inches; light gray (10YR 7/2) loamy fine sand, brown (10YR 5/3) moist; weak thin platy structure; soft, very friable; mildly alkaline; clear smooth boundary.

**A2**—4 to 15 inches; light gray (10YR 7/2) loamy fine sand, brown (10YR 5/3) moist; massive; soft, very friable; mildly alkaline; clear smooth boundary.

**Bw**—15 to 22 inches; pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; soft, very friable; strongly effervescent; mildly alkaline; gradual smooth boundary.

**Bk**—22 to 60 inches; light gray (10YR 7/2) loamy sand, pale brown (10YR 6/3) moist; massive; soft, very friable; violently effervescent; moderately alkaline.

### Typical Pedon Location

*Map unit in which located:* Davey loamy fine sand, 0 to 4 percent slopes

*Location in survey area:* About 9 miles southwest of Grand View, about 1,600 feet north and 450 feet west of the southeast corner of sec. 10, T. 6 S., R. 4 E.

### Range in Characteristics

*Depth to secondary lime:* 11 to 24 inches

#### *A horizon:*

Value—5 to 7 dry, 3 to 5 moist

Chroma—2 or 3 dry or moist

#### *Bw horizon:*

Value—5 to 7 dry, 3 to 5 moist

Chroma—2 to 4 dry or moist

Texture—fine sandy loam or sandy loam

#### *Bk horizon:*

Value—6 or 7 dry, 4 to 6 moist

Chroma—2 to 4 dry or moist

Texture—loamy sand, loamy fine sand, or loamy very fine sand

## Day Series

*Depth class:* Very deep

*Drainage class:* Well drained

*Position on landscape:* Basalt plains, terraces

*Parent material:* Alluvium derived from basalt

*Slope:* 2 to 15 percent

*Elevation:* 3,200 to 5,300 feet

*Average annual precipitation:* 10 to 13 inches

*Average annual air temperature:* 45 to 50 degrees F

*Frost-free period:* 90 to 130 days

**Taxonomic class:** Very fine, montmorillonitic, mesic  
Typic Chromoxererts

### Typical Pedon

- A1—0 to 6 inches; brown (10YR 4/3) very stony silty clay, very dark grayish brown (10YR 3/2) moist; strong very fine granular structure; very hard, very firm, very sticky and very plastic; common very fine and fine roots; common very fine and fine tubular pores; 10 percent stones on surface; neutral; abrupt smooth boundary.
- A2—6 to 14 inches; brown (10YR 4/3) silty clay, very dark grayish brown (10YR 3/2) moist; strong coarse prismatic structure; very hard, very firm, very sticky and very plastic; common pressure faces and slickensides; common very fine and fine roots; common very fine and fine irregular pores; 10 percent cobbles; mildly alkaline; abrupt wavy boundary.
- C1—14 to 30 inches; brown (10YR 5/3) silty clay, dark brown (10YR 4/3) moist; moderate medium prismatic structure; very hard, very firm, very sticky and very plastic; common very fine and fine roots; common very fine and fine irregular pores; common pressure faces and intersecting slickensides; 5 percent cobbles; moderately alkaline; abrupt smooth boundary.
- C2—30 to 40 inches; brown (10YR 5/3) silty clay, dark brown (10YR 4/3) moist; strong medium angular blocky structure; very hard, very firm, very sticky and very plastic; few very fine roots; few very fine irregular pores; few pressure faces; 10 percent cobbles; moderately alkaline; abrupt smooth boundary.
- C3—40 to 65 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 5/3) moist; massive; slightly hard, friable, sticky and plastic; few very fine roots; few very fine irregular pores; mildly alkaline; strongly effervescent.

### Typical Pedon Location

*Map unit in which located:* Chilcott-Day-Rock outcrop complex, 2 to 15 percent slopes

*Location in survey area:* About 9 miles north of Mountain Home, about 150 feet north and 1,950 feet east of the southwest corner of sec. 2, T. 2 S., R. 6 E.

### Range in Characteristics

*Other characteristics:* Cracks that are 1 to 7 centimeters wide and extend to a depth of 12 to 24 inches; from July through October

*A horizon:*

Hue—7.5YR or 10YR

Value—3 or 4 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

*C horizon:*

Hue—7.5YR or 10YR

Value—5 or 6 dry, 2 to 5 moist

Chroma—2 or 3 dry or moist

Texture—silty clay or clay in the upper part; loam, clay loam, or silty clay loam in the lower part

### Taxadjunct Features

The textural control section of the Day soils in this survey area averages less than 60 percent clay and has hue of 7.5YR or 10YR. These features are outside the range for the Day series; however, they do not significantly affect use and management.

## Demast Series

*Depth class:* Deep

*Drainage class:* Well drained

*Position on landscape:* Mountainsides

*Parent material:* Alluvium and residuum derived from volcanic rock

*Slope:* 10 to 30 percent

*Elevation:* 5,900 to 6,900 feet

*Average annual precipitation:* 18 to 22 inches

*Average annual air temperature:* 39 to 41 degrees F

*Frost-free period:* 45 to 55 days

**Taxonomic class:** Fine-loamy, mixed Argic Pachic Cryoborolls

### Typical Pedon

- A1—0 to 2 inches; very dark grayish brown (10YR 3/2) loam, black (10YR 2/1) moist; strong medium and coarse granular structure; slightly hard, very friable, slightly sticky and slightly plastic; few fine roots; many very fine and fine interstitial pores;

moderately acid; abrupt smooth boundary.

A2—2 to 15 inches; dark brown (10YR 3/3) loam, very dark brown (10YR 2/2) moist; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common fine, medium, and coarse roots; common very fine and fine interstitial pores; 10 percent pebbles; moderately acid; clear smooth boundary.

Bt1—15 to 22 inches; brown (7.5YR 4/3) gravelly loam, dark brown (7.5YR 3/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine, medium, and coarse roots; many very fine and fine tubular pores; few thin clay films on faces of peds and in pores; 15 percent pebbles; moderately acid; clear wavy boundary.

Bt2—22 to 33 inches; brown (7.5YR 4/4) cobbly loam, dark brown (7.5YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and slightly plastic; common fine, medium, and coarse roots; common very fine and fine tubular pores; few thin clay films on faces of peds and in pores; 10 percent stones, 15 percent cobbles, and 5 percent pebbles; moderately acid; clear wavy boundary.

Bt3—33 to 41 inches; reddish brown (5YR 4/4) gravelly clay loam, dark reddish brown (5YR 3/4) moist; moderate coarse subangular blocky structure; hard, firm, sticky and plastic; few fine and medium roots; common fine tubular pores; common moderately thick clay films on faces of peds; 25 percent pebbles and 5 percent cobbles; moderately acid; gradual wavy boundary.

Cr—41 to 52 inches; highly weathered latite and small amounts of soil material that is similar to that of the Bt3 horizon.

R—52 inches; unweathered latite.

#### Typical Pedon Location

*Map unit in which located:* Elkcreek-Demast complex, 10 to 50 percent slopes

*Location in survey area:* About 19 miles northeast of Mountain Home, about 2,500 feet south and 300 feet west of the northeast corner of sec. 19, T. 2 S., R. 10 E.

#### Range in Characteristics

*Depth to bedrock:* 40 to 60 inches

*Thickness of mollic epipedon:* 30 to 40 inches

*Particle-size control section:*

Content of rock fragments—15 to 35 percent

Content of clay—24 to 30 percent

*Bt horizon:*

Hue—10YR, 7.5YR, or 5YR

Value—4 or 5 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

### Dors Series

*Depth class:* Very deep

*Drainage class:* Well drained

*Position on landscape:* Fan terraces

*Parent material:* Mixed alluvium

*Slope:* 0 to 20 percent

*Elevation:* 2,300 to 3,000 feet

*Average annual precipitation:* 6 to 8 inches

*Average annual air temperature:* 51 to 54 degrees F

*Frost-free period:* 130 to 150 days

**Taxonomic class:** Coarse loamy over sandy or sandy-skeletal, mixed, mesic Typic Calciorthids

#### Typical Pedon

A1—0 to 1 inch; light brownish gray (10YR 6/2) fine sandy loam, dark grayish brown (10YR 4/2) moist; weak thick platy structure parting to weak very fine granular; soft, very friable; few fine roots; few fine vesicular pores; moderately alkaline; abrupt smooth boundary.

A2—1 to 5 inches; pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 4/3) moist; weak thin platy structure; slightly hard, very friable; few fine roots; few fine vesicular pores; strongly effervescent; moderately alkaline; abrupt smooth boundary.

Bk1—5 to 20 inches; pinkish gray (7.5YR 6/2) fine sandy loam, dark grayish brown (10YR 4/2) moist; massive; hard, very friable; few fine roots; few fine tubular pores; violently effervescent; moderately alkaline; clear smooth boundary.

Bk2—20 to 26 inches; very pale brown (10YR 8/3) fine sandy loam, pale brown (10YR 6/3) moist; massive; hard, very friable, slightly sticky and slightly plastic; few fine roots; few fine tubular pores; violently effervescent; strongly alkaline; abrupt smooth boundary.

2Bk3—26 to 60 inches; variegated very gravelly sand; single grain; loose; 40 percent pebbles and 10 percent cobbles; calcium carbonate coatings on underside of rock fragments; slightly effervescent.

#### Typical Pedon Location

*Map unit in which located:* Dors fine sandy loam, 0 to 4 percent slopes

*Location in survey area:* About 4 miles north of Grand

View, about 150 feet north and 1,000 feet east of the southwest corner of sec. 27, T. 4 S., R. 3 E.

### Range in Characteristics

*Depth to very gravelly sand:* 20 to 40 inches

#### *A horizon:*

Value—5 to 7 dry, 3 to 5 moist

Chroma—2 or 3 dry or moist

#### *Bk1 and Bk2 horizons:*

Hue—7.5YR or 10YR

Value—6 to 8 dry, 4 to 6 moist

Chroma—2 or 3 dry or moist

Texture—loam, fine sandy loam, or very fine sandy loam

#### *2Bk3 horizon:*

Texture—very gravelly loamy sand, very gravelly loamy coarse sand, very gravelly sand, or very gravelly coarse sand

Content of pebbles—35 to 60 percent

Content of cobbles—0 to 15 percent

## Elijah Series

*Depth class:* Moderately deep (to a duripan)

*Drainage class:* Well drained

*Position on landscape:* Basalt plains, alluvial plains

*Parent material:* Loess and silty alluvium derived from various kinds of rock

*Slope:* 0 to 12 percent

*Elevation:* 2,900 to 4,500 feet

*Average annual precipitation:* 8 to 12 inches

*Average annual air temperature:* 48 to 51 degrees F

*Frost-free period:* 110 to 140 days

**Taxonomic class:** Fine-silty, mixed, mesic Xerollic Durargids

### Typical Pedon

A1—0 to 4 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; weak medium platy structure; soft, very friable, slightly sticky and slightly plastic; many very fine roots; many very fine vesicular pores; mildly alkaline; abrupt smooth boundary.

A2—4 to 7 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; moderate very thin platy structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; many very fine tubular pores; mildly alkaline; abrupt smooth boundary.

Bt1—7 to 16 inches; brown (7.5YR 5/4) silty clay loam,

dark brown (7.5YR 4/4) moist; moderate fine prismatic structure parting to strong medium subangular blocky; hard, firm, sticky and plastic; common fine roots; many fine tubular pores; many moderately thick clay films on faces of peds and lining pores; mildly alkaline; clear smooth boundary.

Bt2—16 to 21 inches; light brown (7.5YR 6/4) silty clay loam, brown (7.5YR 4/4) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; hard, firm, sticky and plastic; common fine roots; many fine tubular pores; common moderately thick clay films on faces of peds and lining pores; moderately alkaline; abrupt smooth boundary.

Bk1—21 to 25 inches; light gray (10YR 7/2) loam, brown (7.5YR 5/4) moist; moderate medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine roots; many very fine tubular pores; slightly effervescent; moderately alkaline; abrupt smooth boundary.

Bk2—25 to 30 inches; pink (7.5YR 8/4) loam, pink (7.5YR 7/4) moist; moderate medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; strongly effervescent; moderately alkaline; abrupt smooth boundary.

Bkqm—30 to 41 inches; very pale brown (10YR 8/4), indurated duripan, very pale brown (10YR 7/3) moist; extremely hard, extremely firm; laminar silica cap about 5 millimeters thick at top; lower part is broken and has lenses of silica between plates; violently effervescent; strongly alkaline; abrupt wavy boundary.

C—41 to 60 inches; very pale brown (10YR 7/3) fine sandy loam, pale brown (10YR 6/3) moist; massive; slightly hard, friable; strongly effervescent; moderately alkaline.

### Typical Pedon Location

*Map unit in which located:* Elijah silt loam, 0 to 4 percent slopes

*Location in survey area:* About 3 miles northwest of Mountain Home, about 2,400 feet south and 1,840 feet east of the northwest corner of sec. 16, T. 3 S., R. 6 E.

### Range in Characteristics

*Depth to duripan:* 20 to 40 inches

*Other characteristics:* E horizon in some pedons

#### *Bt horizon:*

Hue—7.5YR or 10YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 to 4 dry or moist

Texture—silt loam or silty clay loam  
Content of clay—24 to 35 percent

*C horizon:*

Texture—fine sandy loam to gravelly sand; stratified  
in some pedons

### **Elkcreek Series**

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Position on landscape:* Foothills, mountainsides

*Parent material:* Alluvium and residuum derived from  
volcanic rock

*Slope:* 0 to 50 percent

*Elevation:* 4,500 to 6,800 feet

*Average annual precipitation:* 14 to 20 inches

*Average annual air temperature:* 40 to 45 degrees F

*Frost-free period:* 50 to 80 days

**Taxonomic class:** Fine-loamy, mixed, frigid Ultic  
Argixerolls

#### **Typical Pedon**

A—0 to 4 inches; brown (7.5YR 5/2) stony loam, dark brown (7.5YR 3/2) moist; moderate medium and coarse subangular blocky structure; hard, friable, slightly sticky and slightly plastic; many fine, medium, and coarse roots; common very fine and fine tubular pores and few fine interstitial pores; slightly acid; clear smooth boundary.

Bt1—4 to 10 inches; brown (10YR 5/3) stony clay loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; hard, very friable, sticky and slightly plastic; common fine roots and many medium and coarse roots; common very fine tubular pores and many very fine interstitial pores; few moderately thick clay films in pores and on faces of peds; slightly acid; abrupt smooth boundary.

Bt2—10 to 22 inches; pale brown (10YR 6/3) stony loam, brown (10YR 4/3) moist; hard, very friable, slightly sticky and slightly plastic; few fine roots and many medium and coarse roots; few very fine and fine tubular pores and common very fine interstitial pores; common moderately thick clay films in pores and on faces of peds; slightly acid; abrupt smooth boundary.

R—22 inches; basalt.

#### **Typical Pedon Location**

*Map unit in which located:* Gaib-Elkcreek-Rock outcrop association, 2 to 20 percent slopes

*Location in survey area:* About 28 miles northeast of Mountain Home, about 150 feet south and 800 feet east of the northwest corner of sec. 7, T. 2 N., R. 9 E.

#### **Range in Characteristics**

*Depth to bedrock:* 20 to 40 inches

*Thickness of mollic epipedon:* 10 to 16 inches

*A horizon:*

Hue—10YR or 7.5YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

*Bt horizon:*

Hue—10YR or 7.5YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 to 4 dry or moist

Texture—sandy clay loam, loam, or clay loam

Content of rock fragments—5 to 15 percent

### **Farrot Series**

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Position on landscape:* Granitic hills

*Parent material:* Alluvium and residuum derived from  
intermediate intrusive rock

*Slope:* 4 to 50 percent

*Elevation:* 3,600 to 4,300 feet

*Average annual precipitation:* 12 to 14 inches

*Average annual air temperature:* 48 to 49 degrees F

*Frost-free period:* 100 to 120 days

**Taxonomic class:** Fine-loamy, mixed, mesic Typic  
Argixerolls

#### **Typical Pedon**

A1—0 to 4 inches; dark grayish brown (10YR 4/2) coarse sandy loam, very dark brown (10YR 2/2) moist; moderate fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine roots; neutral; abrupt smooth boundary.

A2—4 to 10 inches; grayish brown (10YR 5/2) coarse sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure parting to moderate medium granular; hard, friable, slightly sticky and slightly plastic; common fine roots; neutral; clear smooth boundary.

Bt1—10 to 15 inches; brown (10YR 5/3) sandy clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; very hard,

firm, slightly sticky and slightly plastic; few very fine roots; common moderately thick clay films on faces of peds; 5 percent fine pebbles; neutral; gradual smooth boundary.

Bt2—15 to 24 inches; light yellowish brown (10YR 6/4) sandy clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; very hard, very firm, slightly sticky and slightly plastic; few very fine roots; many moderately thick clay films on faces of peds; 10 percent fine pebbles; mildly alkaline; gradual wavy boundary.

C—24 to 30 inches; light yellowish brown (10YR 6/4) very gravelly coarse sandy loam, dark yellowish brown (10YR 4/4) moist; massive; hard, firm; few very fine roots; mildly alkaline; gradual irregular boundary.

R—30 inches; unweathered quartz-diorite.

### Typical Pedon Location

*Map unit in which located:* Farrot-Haw complex, 20 to 50 percent slopes

*Location in survey area:* About 15 miles northwest of Mountain Home, about 1,850 feet north and 1,900 feet east of the southwest corner of sec. 7, T. 1 S., R. 6 E.

### Range in Characteristics

*Depth to bedrock:* 20 to 40 inches

*Thickness of mollic epipedon:* 10 to 16 inches

*A horizon:*

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

*Bt horizon:*

Value—4 to 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—clay loam, sandy clay loam, gravelly clay loam, or gravelly sandy clay loam

Content of pebbles—5 to 25 percent

## Fluvaquents

*Depth class:* Very deep

*Drainage class:* Poorly drained or somewhat poorly drained

*Position on landscape:* Flood plains

*Parent material:* Mixed alluvium

*Slope:* 0 to 1 percent

*Elevation:* 2,400 to 2,600 feet

*Average annual precipitation:* 6 to 8 inches

*Average annual air temperature:* 52 to 54 degrees F

*Frost-free period:* 140 to 150 days

### Representative Pedon

A1—0 to 5 inches; light brownish gray (2.5Y 6/2) clay loam, dark grayish brown (2.5Y 4/2) moist; weak medium granular structure; hard, firm, sticky and plastic; many very fine and fine roots; slightly effervescent; mildly alkaline; abrupt smooth boundary.

A2—5 to 7 inches; light brownish gray (2.5Y 6/2) loam, dark grayish brown (2.5Y 4/2) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots and few medium roots; slightly effervescent; mildly alkaline; abrupt smooth boundary.

C1—7 to 18 inches; light brownish gray (10YR 6/2) loamy sand, dark grayish brown (2.5Y 4/2) moist; single grain; loose; common very fine, fine, and medium roots; slightly effervescent; mildly alkaline; abrupt smooth boundary.

C2—18 to 31 inches; light gray (10YR 7/2) fine sandy loam, dark grayish brown (10YR 4/2) moist; few fine distinct olive brown (2.5Y 4/3) mottles; massive; soft, very friable; common very fine and fine roots; strongly effervescent; mildly alkaline; clear smooth boundary.

C3—31 to 39 inches; light olive gray (5Y 6/2) silt loam, very dark gray (5Y 3/1) moist; few fine distinct olive brown (2.5Y 4/3) mottles; massive; slightly hard, friable, slightly sticky and slightly plastic; few fine and medium roots; mildly alkaline; abrupt smooth boundary.

C4—39 to 60 inches; light gray (5Y 6/1) silt loam, very dark gray (5Y 3/1) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; mildly alkaline.

### Representative Pedon Location

*Map unit in which located:* Fluvaquents, channeled

*Location in survey area:* About 2 miles south of Bruneau, about 500 feet north and 100 feet west of the southeast corner of sec. 31, T. 6 S., R. 6 E.

### Range in Characteristics

*Depth to mottles:* 10 to 40 inches

*Depth to water table:* 15 to 40 inches

*Particle-size control section:*

Content of pebbles and cobbles—0 to 50 percent

Texture—averages loamy sand to heavy silt loam, but commonly includes contrasting material

Conductivity of saturation extract—2 to 8 millimhos

**Gaib Series***Depth class:* Shallow*Drainage class:* Well drained*Position on landscape:* Canyonsides, foothills*Parent material:* Residuum and alluvium derived from volcanic rock*Slope:* 2 to 80 percent*Elevation:* 4,500 to 6,500 feet*Average annual precipitation:* 14 to 20 inches*Average annual air temperature:* 40 to 45 degrees F*Frost-free period:* 50 to 80 days**Taxonomic class:** Loamy-skeletal, mixed, frigid Lithic Ultic Argixerolls**Typical Pedon**

A—0 to 4 inches; brown (10YR 4/3) stony fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and common medium roots; common fine tubular pores and many very fine and fine interstitial pores; 25 percent fine pebbles; moderately acid; clear smooth boundary.

Bt—4 to 12 inches; brown (7.5YR 4/3) very gravelly loam, dark brown (7.5YR 3/2) moist; moderate medium granular structure; hard, firm, slightly sticky and slightly plastic; common very fine, fine, medium, and coarse roots; common fine and medium tubular pores and many very fine and fine interstitial pores; 45 percent pebbles; moderately acid; abrupt smooth boundary.

R—12 inches; basalt.

**Typical Pedon Location**

*Map unit in which located:* Gaib-Elkcreek-Simonton association, 20 to 60 percent slopes

*Location in survey area:* About 18 miles northeast of Mountain Home, about 1,100 feet south and 1,800 feet east of the northwest corner of sec. 11, T. 2 S., R. 9 E.

**Range in Characteristics**

*Depth to bedrock:* 10 to 20 inches

*Thickness of mollic epipedon:* 7 to 12 inches

*Content of rock fragments in particle-size control section:* 35 to 60 percent

*A horizon:*

Value—4 or 5 dry

Chroma—2 or 3 dry or moist

*Bt horizon:*

Hue—7.5YR or 10YR

Value—4 or 5 dry

Chroma—2 or 3 dry or moist

Texture—very gravelly loam or very gravelly sandy clay loam

Content of rock fragments—35 to 60 percent

Content of clay—24 to 35 percent

**Garbutt Series***Depth class:* Very deep*Drainage class:* Well drained*Position on landscape:* Alluvial plains, fan terraces, basalt plains, drainageways*Parent material:* Loess and silty alluvium derived from various kinds of rock*Slope:* 0 to 8 percent*Elevation:* 2,300 to 4,200 feet*Average annual precipitation:* 6 to 8 inches*Average annual air temperature:* 50 to 53 degrees F*Frost-free period:* 110 to 150 days**Taxonomic class:** Coarse-silty, mixed (calcareous), mesic Typic Torriorthents**Typical Pedon**

A—0 to 5 inches; light brownish gray (10YR 6/2) silt loam, dark brown (10YR 4/3) moist; strong medium platy structure; slightly hard, friable; strongly effervescent; moderately alkaline; abrupt smooth boundary.

C1—5 to 27 inches; light gray (10YR 7/2) very fine sandy loam, dark brown (10YR 4/3) moist; massive; soft, very friable; violently effervescent; moderately alkaline; abrupt smooth boundary.

C2—27 to 38 inches; light gray (10YR 7/1) very fine sandy loam, grayish brown (10YR 5/2) moist; massive; hard, firm; violently effervescent; moderately alkaline; clear smooth boundary.

C3—38 to 60 inches; light gray (10YR 7/2) very fine sandy loam, dark grayish brown (10YR 4/2) moist; massive; hard, firm; violently effervescent; moderately alkaline.

**Typical Pedon Location**

*Map unit in which located:* Garbutt-Weso complex, 0 to 2 percent slopes

*Location in survey area:* About 16 miles southwest of Mountain Home, about 2,250 feet north and 2,500 feet east of the southwest corner of sec. 30, T. 4 S., R. 4 E.

**Range in Characteristics**

*Texture:* Silt loam or very fine sandy loam

*Content of clay:* 12 to 18 percent

*Calcium carbonate equivalent:* 0 to 15 percent

*A horizon:*

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

*C horizon:*

Value—6 to 8 dry, 4 to 6 moist

Chroma—1 to 4 dry or moist

Effervescence—slightly effervescent to violently effervescent

## Goose Creek Series

*Depth class:* Very deep

*Drainage class:* Somewhat poorly drained

*Position on landscape:* Stream terraces, flood plains

*Parent material:* Mixed alluvium

*Slope:* 0 to 4 percent

*Elevation:* 2,500 to 4,800 feet

*Average annual precipitation:* 9 to 13 inches

*Average annual air temperature:* 46 to 52 degrees F

*Frost-free period:* 90 to 140 days

**Taxonomic class:** Fine-loamy, mixed, mesic Cumulic Haploxerolls

### Typical Pedon

A1—0 to 6 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate very fine and fine granular structure; soft, very friable; many very fine and fine roots; many very fine irregular pores; moderately alkaline; clear smooth boundary.

A2—6 to 17 inches; dark gray (10YR 4/1) silty clay loam, black (10YR 2/1) moist; moderate very fine and fine subangular blocky structure; hard, friable, sticky and plastic; many very fine and fine roots; many very fine irregular pores and few very fine tubular pores; moderately alkaline; gradual smooth boundary.

A3—17 to 28 inches; gray (10YR 5/1) silt loam, very dark gray (10YR 3/1) moist; weak coarse subangular blocky structure; slightly hard, very friable, sticky and plastic; many very fine and few fine roots; many very fine irregular pores and few very fine tubular pores; moderately alkaline; diffuse smooth boundary.

C1—28 to 36 inches; light gray (10YR 7/1) silt loam, dark grayish brown (10YR 4/2) moist; few fine faint very pale brown (10YR 7/3) mottles; massive; soft, very friable; common very fine roots; many very fine irregular pores and few very fine tubular pores;

moderately alkaline; gradual smooth boundary.

C2—36 to 58 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 4/3) moist; common medium prominent brown (7.5YR 4/4) mottles; massive; slightly hard, very friable; few very fine roots; many very fine irregular pores and few very fine tubular pores; moderately alkaline; gradual smooth boundary.

2C3—58 to 74 inches; very pale brown (10YR 7/4) silt loam, dark yellowish brown (10YR 4/4) moist; common fine distinct reddish yellow (7.5YR 6/6) mottles; massive; slightly hard, very friable; 10 percent river gravel; moderately alkaline.

### Typical Pedon Location

*Map unit in which located:* Monroe-Goose Creek association, 0 to 2 percent slopes

*Location in survey area:* About 7 miles north of Hammett, about 900 feet north and 80 feet east of the southwest corner of sec. 28, T. 4 S., R. 9 E.

### Range in Characteristics

*Depth to mottles:* More than 24 inches

*Depth to water table:* 30 to 42 inches

*A horizon:*

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 to 3 dry or moist

*C horizon:*

Value—5 to 7 dry, 3 to 5 moist

Chroma—1 to 4 dry or moist

Texture—dominantly silt loam, loam, silty clay loam, or clay loam with thin strata of sandy loam or loamy sand

Content of rock fragments—0 to 15 percent

Other characteristics—very gravelly material below a depth of 40 inches in some pedons

### Taxadjunct Features

The Goose Creek soils in this survey area have slightly less clay in the control section than is typical for the series. This difference, however, does not significantly affect use and management.

## Grandview Series

*Depth class:* Very deep

*Drainage class:* Moderately well drained

*Position on landscape:* Flood plains, stream terraces

*Parent material:* Mixed alluvium

*Slope:* 0 to 4 percent

*Elevation:* 2,300 to 2,800 feet



*Average annual precipitation:* 6 to 8 inches

*Average annual air temperature:* 51 to 53 degrees F

*Frost-free period:* 140 to 150 days

**Taxonomic class:** Fine-loamy, mixed, mesic Typic  
Calciorthids

### Typical Pedon

A—0 to 4 inches; pale brown (10YR 6/3) loam, dark brown (10YR 3/3) moist; weak thin platy structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; slightly effervescent; moderately alkaline; clear smooth boundary.

Bw—4 to 13 inches; pale brown (10YR 6/3) loam, brown (10YR 5/3) moist; moderate coarse subangular blocky structure; hard, firm, sticky and plastic; few fine roots; common fine tubular pores; slightly effervescent; moderately alkaline; clear smooth boundary.

Bk1—13 to 22 inches; pale brown (10YR 6/3) clay loam, brown (10YR 4/3) moist; strong coarse angular blocky structure; hard, firm, very sticky and very plastic; few very fine roots; few fine tubular pores; strongly effervescent; strongly alkaline; clear smooth boundary.

Bk2—22 to 35 inches; light gray (2.5Y 7/2) clay loam, light gray (2.5Y 7/2) moist; moderate coarse subangular blocky structure; hard, firm, sticky and plastic; few fine tubular pores; strongly effervescent; strongly alkaline; clear smooth boundary.

Bz—35 to 60 inches; light gray (2.5Y 7/2) loam, grayish brown (2.5Y 5/2) moist; few medium distinct brown (10YR 4/3) mottles; moderate coarse subangular blocky structure; hard, friable, slightly sticky and plastic; common very fine tubular pores; strongly effervescent; few salt veins; strongly alkaline.

### Typical Pedon Location

*Map unit in which located:* Grandview loam, 0 to 4 percent slopes

*Location in survey area:* About 2 miles southwest of King Hill, about 2,600 feet east and 1,680 feet south of the northwest corner of sec. 14, T. 5 S., R. 10 E.

### Range in Characteristics

*Hue:* 10YR or 2.5Y

*Conductivity of saturation extract:* 4 to 16 millimhos

*Depth to water table:* 40 to 60 inches from April through September

*Content of clay in particle-size control section:* 27 to 35 percent

*A horizon:*

Value—5 to 7 dry, 3 to 5 moist

Chroma—2 or 3 dry or moist

*Bw and Bk horizons:*

Value—5 to 7 dry, 3 to 5 moist

Chroma—2 to 4 dry or moist

Texture—dominantly clay loam or silty clay loam, but includes loam in some pedons

*Bz horizon:*

Value—6 to 8 dry, 4 to 6 moist

Chroma—2 to 4 dry or moist

Texture—dominantly loam, but includes fine sandy loam to silty clay loam in some pedons

Other characteristics—mottles below a depth of 40 inches in some pedons

## Graylock Series

*Depth class:* Deep

*Drainage class:* Somewhat excessively drained

*Position on landscape:* Mountainsides

*Parent material:* Alluvium and colluvium derived from intermediate intrusive rock

*Slope:* 40 to 70 percent

*Elevation:* 5,000 to 7,800 feet

*Average annual precipitation:* 25 to 32 inches

*Average annual air temperature:* 39 to 42 degrees F

*Frost-free season:* 50 to 60 days

**Taxonomic class:** Sandy-skeletal, mixed Typic  
Cryorthents

### Typical Pedon

O—1 inch to 0; forest litter that includes Douglas fir needles.

A1—0 to 2 inches; grayish brown (10YR 5/2) gravelly coarse sandy loam, very dark grayish brown (10YR 3/2) moist; weak very fine granular structure; soft, friable; common very fine roots; few very fine tubular and interstitial pores; 15 percent pebbles; moderately acid; clear wavy boundary.

A2—2 to 7 inches; pale brown (10YR 6/3) gravelly coarse sandy loam, dark brown (10YR 4/3) moist; weak very fine granular structure; soft, friable; common very fine roots; few very fine tubular and interstitial pores; 15 percent fine pebbles; moderately acid; clear wavy boundary.

C1—7 to 26 inches; very pale brown (10YR 7/3) very gravelly loamy sand, brown (10YR 5/3) moist; massive; soft, very friable; few very fine roots; common very fine and fine irregular pores; 35

percent fine pebbles; moderately acid; clear wavy boundary.

C2—26 to 58 inches; very pale brown (10YR 8/3) very gravelly coarse sand; massive; soft, very friable; few medium and coarse roots; few very fine and fine irregular pores; 40 percent fine pebbles; strongly acid; gradual wavy boundary.

R—58 inches; unweathered granodiorite.

### Typical Pedon Location

*Map unit in which located:* Graylock-Broad Canyon complex, 40 to 70 percent slopes

*Location in survey area:* About 1 mile northwest of Featherville, about 550 feet south and 800 feet east of the northwest corner of sec. 4, T. 3 N., R. 10 E.

### Range in Characteristics

*Depth to bedrock:* 40 to 60 inches

*Particle-size control section:*

Content of rock fragments—35 to 60 percent

Content of clay—5 to 15 percent

*A horizon:*

Value—5 or 6 dry, 3 to 5 moist

Chroma—2 or 3 dry or moist

*C horizon:*

Value—6 to 8 dry, 4 to 7 moist

Chroma—2 or 3 dry or moist

Texture—very gravelly loamy sand, very gravelly loamy coarse sand, very gravelly coarse sand, very cobbly loamy coarse sand, or very cobbly coarse sand

Content of pebbles—25 to 60 percent

Content of cobbles—10 to 30 percent

## Greenleaf Series

*Depth class:* Very deep

*Drainage class:* Well drained

*Position on landscape:* Lacustrine terraces

*Parent material:* Lacustrine deposits with some loess and alluvium in the upper part

*Slope:* 0 to 12 percent

*Elevation:* 2,500 to 3,200 feet

*Average annual precipitation:* 7 to 10 inches

*Average annual air temperature:* 50 to 52 degrees F

*Frost-free period:* 130 to 140 days

**Taxonomic class:** Fine-silty, mixed, mesic Xerollic Haplargids

### Typical Pedon

A—0 to 5 inches; pale brown (10YR 6/3) loam, brown

(10YR 4/3) moist; weak very thick platy structure; soft, very friable, slightly sticky and slightly plastic; mildly alkaline; clear smooth boundary.

Bt—5 to 10 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 5/3) moist; weak coarse subangular blocky structure; slightly hard, friable, sticky and plastic; common thin clay films on faces of peds; mildly alkaline; clear smooth boundary.

Btk—10 to 14 inches; very pale brown (10YR 7/3) silty clay loam, brown (10YR 5/3) moist; weak coarse subangular blocky structure; slightly hard, friable, sticky and plastic; common thin clay films on faces of peds; slightly effervescent; mildly alkaline; clear wavy boundary.

Bk—14 to 24 inches; white (10YR 8/1) silt loam, pale brown (10YR 6/3) moist; strong medium subangular blocky structure; slightly hard, firm, sticky and slightly plastic; 10 percent hard nodules; violently effervescent; moderately alkaline; abrupt wavy boundary.

C1—24 to 30 inches; white (10YR 8/1), laminated silt loam, pale brown (10YR 6/3) moist; moderate very thick platy structure; hard, firm; strongly effervescent; moderately alkaline; abrupt smooth boundary.

C2—30 to 60 inches; white (10YR 8/1), consolidated silt loam, pale brown (10YR 6/3) moist; strong thick platy structure; hard, very firm; discontinuous crust of lime and silica ½ millimeter thick at top; strongly effervescent; moderately alkaline.

### Typical Pedon Location

*Map unit in which located:* Greenleaf-Shano complex, 4 to 12 percent slopes

*Location in survey area:* About 2 miles northwest of King Hill, about 1,800 feet north and 1,350 feet east of the southwest corner of sec. 3, T. 5 S., R. 10 E.

### Range in Characteristics

*Depth to laminated lacustrine sediment:* 12 to 40 inches

*Content of clay in particle-size control section:* 23 to 30 percent

*A horizon:*

Hue—2.5Y or 10YR

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 4 dry or moist

*Bt horizon:*

Hue—10YR or 2.5Y

Value—6 or 7 dry, 4 to 6 moist

Chroma—2 to 4 dry or moist

Texture—silty clay loam, silt loam, or loam

*C horizon:*

Hue—7.5YR, 10YR, 2.5Y, or 5Y  
 Value—5 to 8 dry, 5 to 7 moist  
 Chroma—1 to 4 dry or moist  
 Texture—silt loam or silty clay loam

**Grousecreek Series**

*Depth class:* Deep

*Drainage class:* Well drained

*Position on landscape:* Mountainsides

*Parent material:* Alluvium and colluvium derived from intermediate intrusive rock

*Slope:* 20 to 70 percent

*Elevation:* 4,500 to 6,500 feet

*Average annual precipitation:* 23 to 30 inches

*Average annual air temperature:* 40 to 45 degrees F

*Frost-free season:* 50 to 60 days

**Taxonomic class:** Loamy-skeletal, mixed, frigid Ultic Haploxerolls

**Typical Pedon**

- O—1 inch to 0; forest litter that includes Douglas fir needles.
- A—0 to 12 inches; grayish brown (10YR 5/2) gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; weak very fine granular structure; soft, friable; common fine and medium roots; common very fine tubular and interstitial pores; 10 percent pebbles and 5 percent cobbles; slightly acid; abrupt wavy boundary.
- Bw—12 to 32 inches; very pale brown (10YR 7/3) very gravelly sandy loam, yellowish brown (10YR 5/4) moist; weak fine subangular blocky structure; soft, friable; few medium and coarse roots; few fine tubular pores; 40 percent pebbles and 15 percent cobbles; slightly acid; clear wavy boundary.
- C—32 to 50 inches; very pale brown (10YR 7/4) extremely gravelly loamy sand, light yellowish brown (10YR 6/4) moist; massive; soft, friable; few medium and coarse roots; common fine interstitial pores; 50 percent pebbles and 25 percent cobbles; moderately acid; clear smooth boundary.
- R—50 inches; unweathered quartz-diorite.

**Typical Pedon Location**

*Map unit in which located:* Switchback-Grousecreek complex, 20 to 60 percent slopes

*Location in survey area:* About 1 mile north of Featherville, about 1,500 feet north and 1,950 feet

east of the southwest corner of sec. 4, T. 3 N., R. 10 E.

**Range in Characteristics**

*Depth to bedrock:* 40 to 60 inches

*Thickness of mollic epipedon:* 8 to 16 inches

*A horizon:*

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

*Bw horizon:*

Value—6 or 7 dry, 3 to 6 moist

Chroma—3 or 4 dry or moist

Texture—very gravelly sandy loam or very gravelly coarse sandy loam

Content of pebbles and cobbles—35 to 60 percent

*C horizon:*

Value—6 to 8 dry, 4 to 6 moist

Chroma—3 or 4 dry or moist

Texture—extremely gravelly loamy sand to very gravelly coarse sandy loam

Content of pebbles and cobbles—40 to 80 percent

Content of stones—0 to 10 percent

**Haplaquolls**

*Depth class:* Shallow to very deep

*Drainage class:* Somewhat poorly drained or poorly drained

*Position on landscape:* Drainageways, flood plains

*Parent material:* Mixed alluvium

*Slope:* 0 to 2 percent

*Elevation:* 3,600 to 5,500 feet

*Average annual precipitation:* 14 to 24 inches

*Average annual air temperature:* 39 to 48 degrees F

*Frost-free season:* 70 to 110 days

**Representative Pedon**

- A—0 to 6 inches; dark gray (7.5YR 4/0) silt loam, black (7.5YR 2/0) moist; moderate fine and medium granular structure; slightly hard, firm, slightly sticky and plastic; neutral; clear smooth boundary.
- Bw—6 to 12 inches; gray (10YR 5/1) silt loam, very dark gray (10YR 3/1) moist; common prominent reddish yellow (5YR 6/8 moist) mottles; moderate fine and medium subangular blocky structure; hard, firm, sticky and plastic; neutral; clear smooth boundary.
- 2C—12 to 30 inches; gray (10YR 6/1) clay loam, dark grayish brown (10YR 4/2) moist; many medium

prominent reddish yellow (5YR 6/8 moist) mottles; weak fine and medium granular structure; slightly hard, firm, sticky and plastic; neutral; clear wavy boundary.

- 3C—30 to 38 inches; gray (10YR 6/1) loam, dark grayish brown (10YR 4/2) moist; common medium prominent reddish yellow (5YR 6/8 moist) mottles; weak medium granular structure; slightly hard, friable, slightly sticky and slightly plastic; neutral; abrupt wavy boundary.
- 4C—38 to 44 inches; grayish brown (10YR 5/2) silty clay, very dark grayish brown (10YR 3/2) moist; few fine distinct dark yellowish brown (10YR 4/4 moist) mottles; massive; hard, firm, sticky and plastic; neutral; clear smooth boundary.
- 5C—44 to 54 inches; very pale brown (10YR 7/3) sandy clay loam, pale brown (10YR 6/3) moist; common medium distinct brownish yellow (10YR 6/6 moist) mottles; massive; hard, firm, sticky and slightly plastic; neutral; clear smooth boundary.
- 6C—54 to 60 inches; very pale brown (10YR 7/3) loamy sand, brown (10YR 4/3) moist; many large distinct strong brown (7.5YR 5/6 moist) mottles; single grain; loose; neutral.

#### **Representative Pedon Location**

*Map unit in which located:* Haplaquolls-Xerofluvents complex, 0 to 2 percent slopes

*Location in survey area:* About 17 miles west of Hill City, about 1,520 feet east and 2,320 feet north of the southwest corner of sec. 28, T. 1 S., R. 9 E.

#### **Range in Characteristics**

*Depth to mottles:* 4 to 15 inches

*Depth to water table:* 4 to 30 inches

*Thickness of mollic epipedon:* 10 to 30 inches

*Particle-size control section:*

Texture—very cobbly coarse sand to clay loam

Content of pebbles and cobbles—0 to 45 percent

Content of clay—12 to 30 percent

### **Harahill Series**

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Position on landscape:* Basalt plains

*Parent material:* Material weathered from basalt

*Slope:* 0 to 12 percent

*Elevation:* 5,100 to 5,500 feet

*Average annual precipitation:* 14 to 16 inches

*Average annual air temperature:* 40 to 42 degrees F

*Frost-free period:* 60 to 70 days

**Taxonomic class:** Fine-loamy, mixed, frigid Pachic Ultic Haploxerolls

#### **Typical Pedon**

- A1—0 to 4 inches; dark brown (10YR 4/3) stony loam, very dark brown (10YR 2/2) moist; weak very fine granular structure; soft, very friable; 2 percent of surface covered with stones; slightly acid; abrupt smooth boundary.
- A2—4 to 7 inches; dark brown (10YR 4/3) loam, very dark brown (7.5YR 2/2) moist; moderate fine granular structure; soft, very friable, slightly sticky; slightly acid; clear wavy boundary.
- Bw1—7 to 16 inches; brown (7.5YR 5/3) loam, dark reddish brown (5YR 3/2) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky; few thin clay films bridging sand grains; 5 percent pebbles; slightly acid; gradual wavy boundary.
- Bw2—16 to 21 inches; dark brown (7.5YR 4/3) cobbly loam, dark reddish brown (5YR 3/2) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky; few thin clay films bridging sand grains; 15 percent pebbles and 10 percent cobbles; slightly acid; gradual irregular boundary.
- C—21 to 28 inches; brown (7.5YR 5/4) very gravelly loam, dark brown (7.5YR 4/4) moist; massive; hard, firm, slightly sticky and slightly plastic; 35 percent pebbles and 15 percent cobbles that are highly weathered basalt; slightly acid; abrupt smooth boundary.
- R—28 inches; basalt that is weathered in the upper 3 inches.

#### **Typical Pedon Location**

*Map unit in which located:* Harahill-Willho association, 0 to 12 percent slopes

*Location in survey area:* About 8 miles west of Hill City, about 50 feet south and 1,350 feet west of the northeast corner of sec. 13, T. 1 S., R. 10 E.

#### **Range in Characteristics**

*Depth to bedrock:* 24 to 40 inches

*Thickness of mollic epipedon:* 20 to 28 inches

*Particle-size control section:*

Content of rock fragments—as much as 25 percent

Content of clay—18 to 30 percent

*A horizon:*

Hue—7.5YR, 10YR, or 5YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

**Bw horizon:**

Hue—7.5YR or 5YR

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 to 6 dry or moist

Texture—loam, clay loam, or cobbly loam

Content of pebbles and cobbles—0 to 30 percent

## Haw Series

**Depth class:** Very deep

**Drainage class:** Well drained

**Position on landscape:** Dissected fan terraces, granitic hills

**Parent material:** Alluvium derived from intermediate intrusive rock

**Slope:** 4 to 50 percent

**Elevation:** 3,500 to 4,300 feet

**Average annual precipitation:** 11 to 13 inches

**Average annual air temperature:** 48 to 49 degrees F

**Frost-free period:** 110 to 125 days

**Taxonomic class:** Fine-loamy, mixed, mesic Aridic Calcic Argixerolls

### Typical Pedon

A1—0 to 4 inches; dark grayish brown (10YR 4/2) loam, very dark brown (10YR 2/2) moist; weak medium platy structure parting to moderate medium granular; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; neutral; clear smooth boundary.

A2—4 to 9 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; moderate coarse granular structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; neutral; clear smooth boundary.

Bt1—9 to 12 inches; brown (10YR 5/3) clay loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, friable, slightly sticky and plastic; few very fine and fine roots; few thin clay films on faces of pedis; neutral; gradual wavy boundary.

Bt2—12 to 19 inches; light yellowish brown (10YR 6/4) sandy clay loam, brown (10YR 4/3) moist; strong medium subangular blocky structure; very hard, firm, sticky and plastic; few very fine and fine roots; many thick clay films on faces of pedis; neutral; gradual smooth boundary.

Bt3—19 to 25 inches; pale brown (10YR 6/3) sandy

clay loam, brown (10YR 5/3) moist; moderate medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few fine roots; few thin clay films on faces of pedis; mildly alkaline; clear smooth boundary.

Bk—25 to 37 inches; very pale brown (10YR 7/3) coarse sandy loam, pale brown (10YR 6/3) moist; massive; very hard, firm; few fine roots; 10 percent fine pebbles; strongly effervescent; few lime filaments; mildly alkaline; clear smooth boundary.

C—37 to 60 inches; very pale brown (10YR 7/3) loamy coarse sand, pale brown (10YR 6/3) moist; massive; slightly hard, friable; 10 percent fine pebbles; slightly effervescent; mildly alkaline.

### Typical Pedon Location

**Map unit in which located:** Haw-Lankbush complex, 4 to 20 percent slopes

**Location in survey area:** About 15 miles northwest of Mountain Home, about 1,000 feet north and 1,050 feet east of the southwest corner of sec. 7, T. 1 S., R. 6 E.

### Range in Characteristics

**Thickness of mollic epipedon:** 9 to 18 inches

**Bt horizon:**

Hue—7.5YR or 10YR

Value—5 or 6 dry, 3 to 5 moist

Chroma—2 to 4 dry or moist

Texture—sandy clay loam, loam, or clay loam

Content of pebbles—0 to 10 percent

Content of clay—24 to 35 percent

**C horizon:**

Texture—loamy coarse sand, coarse sandy loam, or loamy sand

Content of pebbles—5 to 15 percent

## Hawsley Series

**Depth class:** Very deep

**Drainage class:** Excessively drained

**Position on landscape:** Drainageways, dunes, fan terraces, stream terraces

**Parent material:** Mixed alluvium that has been reworked by wind in some areas

**Slope:** 0 to 12 percent

**Elevation:** 2,500 to 3,300 feet

**Average annual precipitation:** 6 to 8 inches

**Average annual air temperature:** 50 to 52 degrees F

**Frost-free period:** 130 to 150 days

**Taxonomic class:** Mixed, mesic Typic Torripsamments

#### Typical Pedon

Ap—0 to 6 inches; pale brown (10YR 6/3) loamy sand, brown (10YR 4/3) moist; single grain; loose; common fine roots; mildly alkaline; clear smooth boundary.

C—6 to 60 inches; pale brown (10YR 6/3) sand, brown (10YR 4/3) moist; single grain; loose; few fine roots; slightly effervescent; moderately alkaline.

#### Typical Pedon Location

*Map unit in which located:* Hawsley loamy sand, 0 to 12 percent slopes

*Location in survey area:* About 1 mile southwest of Grand View, about 950 feet south and 550 feet west of the northeast corner of sec. 21, T. 5 S., R. 3 E.

#### Range in Characteristics

*C horizon:*

Hue—10YR or 2.5Y

Value—6 or 7 dry, 4 or 5 moist

Texture—dominantly sand, but includes strata of loamy fine sand, loamy sand, fine sand, or coarse sand in some pedons

### Hotcreek Series

*Depth class:* Very shallow (to a duripan)

*Drainage class:* Well drained

*Position on landscape:* Alluvial plains, fan terraces

*Parent material:* Alluvium derived from rhyolite and basalt

*Slope:* 1 to 15 percent

*Elevation:* 3,900 to 4,500 feet

*Average annual precipitation:* 10 to 12 inches

*Average annual air temperature:* 47 to 50 degrees F

*Frost-free period:* 100 to 120 days

**Taxonomic class:** Loamy-skeletal, mixed, mesic, shallow Xerollic Durargids

#### Typical Pedon

A1—0 to 2 inches; light brownish gray (10YR 6/2) very stony loam, dark grayish brown (10YR 4/2) moist; moderate very thin and thin platy structure; soft, very friable, slightly sticky; few very fine, fine, and medium roots; 30 percent pebbles, 5 percent cobbles, and 10 percent stones; mildly alkaline; clear smooth boundary.

A2—2 to 4 inches; light gray (10YR 7/2) very gravelly

loam, grayish brown (10YR 5/2) moist; moderate medium and thin platy structure; soft, very friable, slightly sticky; few very fine, fine, and medium roots; 30 percent pebbles and 10 percent cobbles; slightly effervescent; moderately alkaline; abrupt smooth boundary.

Btk—4 to 8 inches; light brownish gray (10YR 6/2) very cobbly clay loam, brown (10YR 5/3) moist; moderate fine subangular blocky structure; slightly hard, friable, sticky and plastic; many very fine, fine, and medium roots; slightly effervescent; moderately alkaline; clear smooth boundary.

Bkqm1—8 to 11 inches; white (10YR 8/2) duripan, very pale brown (10YR 7/4) moist; massive; very hard, extremely firm; many very fine and fine roots in cracks; strongly effervescent; moderately alkaline; abrupt smooth boundary.

Bkqm2—11 to 14 inches; white (10YR 8/1), indurated duripan, very pale brown (10YR 7/3) moist; very hard, extremely firm; violently effervescent; moderately alkaline; abrupt smooth boundary.

R—14 inches; basalt.

#### Typical Pedon Location

*Map unit in which located:* Hotcreek-Troughs association, 1 to 15 percent slopes

*Location in survey area:* About 10 miles southwest of Oreana, about 1,130 feet north and 2,580 feet west of the southeast corner of sec. 10, T. 6 S., R. 1 W.

#### Range in Characteristics

*Depth to bedrock:* 10 to 14 inches

*Depth to duripan:* 6 to 10 inches

*A horizon:*

Value—5 or 6 dry, 3 or 4 moist

*Bt horizon:*

Value—4 or 5 moist

Texture—very gravelly clay loam or very cobbly clay loam

Content of pebbles and cobbles—35 to 60 percent

*Bkqm horizon:*

Value—7 or 8 dry

Content of pebbles and cobbles—35 to 50 percent

### Houk Series

*Depth class:* Very deep

*Drainage class:* Somewhat poorly drained

*Position on landscape:* Low terraces, flood plains

*Parent material:* Alluvium derived from igneous rock

*Slope:* 0 to 2 percent

*Elevation:* 5,000 to 5,400 feet

*Average annual precipitation:* 14 to 16 inches

*Average annual air temperature:* 40 to 44 degrees F

*Frost free period:* 65 to 75 days

**Taxonomic class:** Fine, montmorillonitic, frigid  
Argiaquic Xeric Argialbolls

#### Typical Pedon

A—0 to 10 inches; dark gray (10YR 4/1) silty clay loam, black (10YR 2/1) moist; moderate fine granular structure; slightly hard, very friable, sticky and plastic; common very fine and fine roots; many very fine and fine interstitial pores; slightly acid; abrupt wavy boundary.

E—10 to 14 inches; light gray (10YR 6/1) silty clay loam, very dark gray (10YR 3/1) moist; moderate medium platy structure; slightly hard, friable, sticky and plastic; common fine roots; common very fine and fine vesicular pores; slightly acid; clear wavy boundary.

Bt1—14 to 25 inches; dark grayish brown (10YR 4/2) silty clay, very dark brown (10YR 2/2) moist; strong medium prismatic structure parting to strong medium angular blocky; hard, firm, very sticky and very plastic; common fine roots; common fine and medium tubular pores; many thick clay films on faces of peds and lining pores; common organic stains on faces of peds; neutral; gradual wavy boundary.

Bt2—25 to 35 inches; dark grayish brown (10YR 4/2) silty clay, very dark grayish brown (10YR 3/2) moist; moderate medium prismatic structure parting to strong medium angular blocky; hard, firm, very sticky and very plastic; few fine roots; common fine tubular pores; many thick clay films on faces of peds and lining pores; common organic stains on faces of peds; neutral; gradual wavy boundary.

Bt3—35 to 42 inches; light brownish gray (10YR 6/2) silty clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, friable, sticky and plastic; few fine roots; common fine tubular pores; common moderately thick clay films on faces of peds and lining pores; common organic stains on faces of peds; neutral; gradual wavy boundary.

Cg—42 to 47 inches; light gray (10YR 7/2) silty clay loam, brown (10YR 5/3) moist; common medium distinct brown (10YR 4/3) mottles; massive; hard, friable, sticky and slightly plastic; neutral; clear smooth boundary.

Btgb—47 to 60 inches; light brownish gray (10YR 6/2) silty clay loam, brown (10YR 4/3) moist; many medium distinct light olive brown (2.5Y 5/4) mottles; massive; hard, firm, very sticky and very plastic; few organic stains in pores; neutral.

#### Typical Pedon Location

*Map unit in which located:* Houk silty clay loam, 0 to 2 percent slopes

*Location in survey area:* About 11 miles west of Hill City, about 1,200 feet south and 200 feet east of the northwest corner of sec. 10, T. 2 S., R. 10 E.

#### Range in Characteristics

*Thickness of mollic epipedon:* 10 to 14 inches

*Texture of particle-size control section:* Silty clay loam, silty clay, clay, or clay loam

*A horizon:*

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 or 2 dry or moist

#### Immiant Series

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Position on landscape:* Foothills, valley sides

*Parent material:* Alluvium and residuum derived from volcanic rock

*Slope:* 0 to 70 percent

*Elevation:* 4,000 to 5,500 feet

*Average annual precipitation:* 12 to 15 inches

*Average annual air temperature:* 45 to 48 degrees F

*Frost-free period:* 80 to 105 days

**Taxonomic class:** Fine-loamy, mixed, mesic Typic Argixerolls

#### Typical Pedon

A—0 to 10 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; weak coarse subangular blocky structure parting to weak very fine subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; many medium, fine, and very fine roots; many fine and very fine tubular pores; 20 percent pebbles and stones; neutral; gradual smooth boundary.

Bt1—10 to 20 inches; yellowish brown (10YR 5/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; weak coarse subangular blocky structure parting to weak fine subangular blocky; hard, friable, sticky and plastic; common medium, fine,

and very fine roots; many fine and very fine tubular pores; many moderately thick clay films on faces of peds; 20 percent pebbles; neutral; clear irregular boundary.

Bt2—20 to 28 inches; dark yellowish brown (10YR 4/4) cobbly clay loam, dark brown (7.5YR 4/4) moist; weak fine subangular blocky structure parting to weak very fine subangular blocky; hard, friable, sticky and plastic; many medium, fine, and very fine roots; many fine and very fine tubular pores; many moderately thick clay films on faces of peds; 30 percent latite cobbles and boulders; neutral; abrupt irregular boundary.

R—28 inches; unweathered latite.

#### Typical Pedon Location

*Map unit in which located:* Immiant gravelly loam, 0 to 12 percent slopes

*Location in survey area:* About 10 miles northeast of Mountain Home, about 2,400 feet north and 2,380 feet east of the southwest corner of sec. 7, T. 2 S., R. 8 E.

#### Range in Characteristics

*Depth to bedrock:* 20 to 40 inches

*Reaction:* Neutral or mildly alkaline

*A horizon:*

Hue—10YR or 7.5YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

*Bt horizon:*

Value—4 to 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Content of pebbles and cobbles—10 to 35 percent

Texture—loam, clay loam, gravelly loam, gravelly clay loam, cobbly loam, or cobbly clay loam

### Jacquith Series

*Depth class:* Moderately deep (to a duripan)

*Drainage class:* Well drained

*Position on landscape:* Alluvial terraces, fan terraces

*Parent material:* Wind-modified alluvium derived from various kinds of rock

*Slope:* 0 to 12 percent

*Elevation:* 2,600 to 3,500 feet

*Average annual precipitation:* 7 to 10 inches

*Average annual air temperature:* 49 to 53 degrees F

*Frost-free period:* 120 to 150 days

**Taxonomic class:** Sandy, mixed, mesic Haploxerollic Durorthids

#### Typical Pedon

A1—0 to 4 inches; dark grayish brown (10YR 4/2) loamy sand, dark brown (10YR 3/3) moist; weak medium platy structure; soft, very friable; mildly alkaline; abrupt smooth boundary.

A2—4 to 10 inches; yellowish brown (10YR 5/4) loamy sand, dark brown (10YR 3/3) moist; weak thick platy structure; slightly hard, very friable; mildly alkaline; clear smooth boundary.

Bw—10 to 17 inches; brown (10YR 4/3) loamy sand, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; slightly hard, very friable; moderately alkaline; clear smooth boundary.

Bk—17 to 30 inches; brown (10YR 5/3) loamy sand, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable; slightly effervescent; 5 to 10 percent lime-coated pebbles; moderately alkaline; clear smooth boundary.

Bkqm—30 to 60 inches; light brownish gray (10YR 6/2), weakly cemented duripan, dark grayish brown (10YR 4/2) moist; strong very thick platy structure parting to strong coarse subangular blocky; hard, firm; opalized coating 1 millimeter thick on discontinuous plate at top; material between plates is gravelly loamy sand that is 15 percent lime-coated pebbles; strongly effervescent.

#### Typical Pedon Location

*Map unit in which located:* Jacquith loamy sand, 4 to 12 percent slopes

*Location in survey area:* About 2 miles west of Glenns Ferry, about 1,320 feet north and 60 feet west of the southeast corner of sec. 31, T. 5 S., R. 10 E.

#### Range in Characteristics

*Depth to duripan:* 20 to 40 inches

*A horizon:*

Value—4 to 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

*Bw and Bk horizons:*

Value—4 to 6 dry, 3 to 5 moist

Chroma—2 or 3 dry or moist

Texture—loamy fine sand, loamy sand, or loamy coarse sand

### Jenness Series

*Depth class:* Very deep

*Drainage class:* Well drained



*Position on landscape:* Drainageways, fan terraces  
*Parent material:* Alluvium derived from igneous rock  
*Slope:* 0 to 4 percent  
*Elevation:* 2,600 to 4,000 feet  
*Average annual precipitation:* 9 to 12 inches  
*Average annual air temperature:* 48 to 52 degrees F  
*Frost-free period:* 110 to 140 days

**Taxonomic class:** Coarse-loamy, mixed, nonacid, mesic Xeric Torriorthents

#### Typical Pedon

- A—0 to 6 inches; grayish brown (10YR 5/2) sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium platy structure parting to weak fine granular; soft, very friable, slightly sticky and slightly plastic; many very fine, fine, and medium roots; mildly alkaline; clear wavy boundary.
- C1—6 to 12 inches; light brownish gray (10YR 6/2) loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; many very fine, fine, and medium roots; common fine tubular pores; moderately alkaline; clear smooth boundary.
- C2—12 to 32 inches; light brownish gray (10YR 6/2) sandy loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common fine tubular pores; moderately alkaline; gradual smooth boundary.
- C3—32 to 36 inches; light brownish gray (10YR 6/2) sandy loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, firm, slightly sticky and slightly plastic; few very fine and fine roots; common medium tubular pores; moderately alkaline; abrupt smooth boundary.
- 2C4—36 to 60 inches; light brownish gray (10YR 6/2) gravelly loamy sand, dark grayish brown (10YR 4/2) moist; loose; moderately alkaline.

#### Typical Pedon Location

*Map unit in which located:* Lankbush-Jenness association, 0 to 4 percent slopes  
*Location in survey area:* About 13 miles northwest of Mountain Home, about 160 feet north and 2,000 feet west of the southeast corner of sec. 33, T. 1 S., R. 5 E.

#### Range in Characteristics

*Texture of particle-size control section:* Sandy loam, loam, or silt loam

*A horizon:*

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 to 4 dry or moist

*C horizon:*

Hue—10YR or 2.5Y

Texture—sandy loam or loam

*2C horizon:*

Texture—sandy loam, loamy sand, gravelly sandy loam, or gravelly loamy sand

#### Karcac Series

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Position on landscape:* Basalt plains, terraces

*Parent material:* Alluvium and residuum derived from basalt

*Slope:* 2 to 15 percent

*Elevation:* 3,600 to 5,300 feet

*Average annual precipitation:* 11 to 13 inches

*Average annual air temperature:* 46 to 49 degrees F

*Frost-free period:* 85 to 120 days

**Taxonomic class:** Fine, montmorillonitic, mesic Entic Chromoxererts

#### Typical Pedon

- A1—0 to 4 inches; grayish brown (10YR 5/2) extremely stony silty clay, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; hard, firm, sticky and plastic; common fine roots; common cracks 1 to 3 millimeters wide; 20 percent of surface covered with stones; neutral; abrupt smooth boundary.
- A2—4 to 11 inches; brown (10YR 5/3) clay, dark brown (10YR 3/3) moist; moderate very coarse subangular blocky structure; very hard, very firm, very sticky and very plastic; few fine roots; common cracks 2 millimeters wide; many pressure faces and common intersecting slickensides; 5 percent stones; neutral; clear wavy boundary.
- C—11 to 31 inches; light brown (7.5YR 6/4) clay, brown (7.5YR 4/4) moist; massive; very hard, very firm, very sticky and very plastic; few fine roots; many pressure faces and few intersecting slickensides; common cracks 1.5 millimeters wide; 10 percent stones; mildly alkaline; abrupt smooth boundary.
- R—31 inches; unweathered basalt.

#### Typical Pedon Location

*Map unit in which located:* Karcac-Day-Rock outcrop complex, 2 to 15 percent slopes  
*Location in survey area:* About 11 miles northeast of

King Hill, about 1,950 feet north and 2,600 feet east of the southwest corner of sec. 24, T. 3 S., R. 11 E.

### Range in Characteristics

*Depth to bedrock:* 20 to 40 inches

*A horizon:*

Hue—10YR or 7.5YR

Chroma—2 to 4 dry or moist

*C horizon:*

Hue—10YR or 7.5YR

Value—5 to 7 dry, 4 to 6 moist

Chroma—3 or 4 dry or moist

Texture—silty clay or clay

Content of rock fragments—0 to 15 percent

Other characteristics—cracks 1 to 3 millimeters wide extending to bedrock

### Kunaton Series

*Depth class:* Shallow (to a duripan)

*Drainage class:* Well drained

*Position on landscape:* Basalt plains

*Parent material:* Loess and alluvium derived from various kinds of rock

*Slope:* 0 to 12 percent

*Elevation:* 3,100 to 4,400 feet

*Average annual precipitation:* 9 to 12 inches

*Average annual air temperature:* 48 to 51 degrees F

*Frost-free period:* 110 to 130 days

**Taxonomic class:** Clayey, montmorillonitic, mesic, shallow Abruptic Xerollic Durargids

### Typical Pedon

E—0 to 3 inches; very pale brown (10YR 7/3) silt loam, yellowish brown (10YR 5/4) moist; moderate thick platy structure; soft, very friable; common very fine and fine roots; many fine and common medium vesicular pores; mildly alkaline; abrupt smooth boundary.

Bt1—3 to 4 inches; very pale brown (10YR 7/3) silt loam, yellowish brown (10YR 5/4) moist; weak very coarse subangular blocky structure parting to moderate medium granular; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine tubular pores; few thin clay films bridging mineral grains; mildly alkaline; abrupt smooth boundary.

Bt2—4 to 10 inches; yellowish brown (10YR 5/4) silty clay, brown (7.5YR 4/4) moist; strong coarse subangular blocky structure parting to strong very

fine angular blocky; hard, friable, sticky and plastic; few very fine and fine roots; few very fine tubular pores and common very fine interstitial pores; continuous moderately thick clay films on faces of peds; mildly alkaline; abrupt smooth boundary.

Btk—10 to 12 inches; light yellowish brown (10YR 6/4) silty clay loam, dark yellowish brown (10YR 4/4) moist; moderate coarse subangular blocky structure parting to moderate fine angular blocky; hard, friable, sticky and plastic; few very fine and medium roots; few very fine tubular pores; many moderately thick clay films on faces of peds; strongly effervescent; moderately alkaline; clear smooth boundary.

Bkq—12 to 15 inches; white (10YR 8/2) silt loam, brown (10YR 5/3) moist; massive; hard, firm; few very fine and fine roots; few very fine and fine tubular pores; 10 percent gravel-sized hardpan fragments; 65 percent durinodes 20 to 30 millimeters in diameter; very thin coatings of silica on durinodes; violently effervescent; moderately alkaline; abrupt wavy boundary.

Bkqm—15 to 31 inches; white (10YR 8/2), indurated duripan, pinkish white (7.5YR 8/2) moist; pan consists of silica-coated plates 3 to 5 centimeters thick; violently effervescent; strongly alkaline; abrupt smooth boundary.

R—31 inches; basalt.

### Typical Pedon Location

*Map unit in which located:* Colthorp-Kunaton complex, 0 to 8 percent slopes

*Location in survey area:* About 8 miles west of Mountain Home, about 1,650 feet north and 400 feet east of the southwest corner of sec. 2, T. 3 S., R. 5 E.

### Range in Characteristics

*Depth to duripan:* 10 to 20 inches

*Depth to bedrock:* 20 to 40 inches

*Other characteristics:* BA and Bkq horizons absent in some pedons

*E horizon:*

Value—5 to 7 dry, 3 or 4 moist

Chroma—2 to 4 dry or moist

*Bt horizon:*

Hue—7.5YR or 10YR

Value—5 to 7 dry, 3 to 5 moist

Chroma—3 or 4 dry or moist

Texture—dominantly silty clay, silty clay loam, or clay, but includes some thin strata of silt loam

**Lankbush Series***Depth class:* Very deep*Drainage class:* Well drained*Position on landscape:* Dissected fan terraces, stream terraces*Parent material:* Mixed alluvium*Slope:* 0 to 30 percent*Elevation:* 2,500 to 3,900 feet*Average annual precipitation:* 9 to 12 inches*Average annual air temperature:* 49 to 52 degrees F*Frost-free period:* 110 to 140 days**Taxonomic class:** Fine-loamy, mixed, mesic Xerollic  
Haplargids**Typical Pedon**

- A1—0 to 4 inches; grayish brown (10YR 5/2) sandy loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; soft, friable; neutral; clear smooth boundary.
- A2—4 to 8 inches; light brownish gray (10YR 6/2) sandy loam, dark grayish brown (10YR 4/2) moist; moderate fine granular structure; soft, friable; neutral; clear smooth boundary.
- BA—8 to 12 inches; pale brown (10YR 6/3) coarse sandy loam, dark brown (10YR 4/3) moist; moderate fine subangular blocky structure; slightly hard, friable; mildly alkaline; clear smooth boundary.
- Bt1—12 to 21 inches; light yellowish brown (10YR 6/4) sandy clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium prismatic structure; hard, firm; mildly alkaline; clear smooth boundary.
- Bt2—21 to 27 inches; pale brown (10YR 6/3) sandy clay loam, brown (10YR 5/3) moist; weak moderate subangular blocky structure; hard, firm; moderately alkaline; gradual smooth boundary.
- Bt3—27 to 50 inches; very pale brown (10YR 7/3) sandy clay loam, brown (10YR 5/3) moist; band of dark brown (7.5YR 4/3) clay lamellae; 10 percent fine pebbles; massive; slightly hard, firm; moderately alkaline; gradual smooth boundary.
- 2C—50 to 60 inches; variegated sand; single grain; loose.

**Typical Pedon Location***Map unit in which located:* Haw-Lankbush complex, 4 to 20 percent slopes*Location in survey area:* About 20 miles northwest of Mountain Home, about 1,200 feet north and 2,100 feet west of the southeast corner of sec. 31, T. 1 N., R. 5 E.**Range in Characteristics***Bt horizon:*

Texture—sandy clay loam or clay loam

Content of pebbles—0 to 15 percent

Content of clay—20 to 30 percent

*C horizon:*

Texture—sandy loam to coarse sand that is stratified in some pedons

Content of pebbles—5 to 15 percent

**Lanktree Series***Depth class:* Very deep*Drainage class:* Well drained*Position on landscape:* Basalt plains, fan terraces*Parent material:* Alluvium derived from intermediate intrusive rock*Slope:* 0 to 30 percent*Elevation:* 2,600 to 3,900 feet*Average annual precipitation:* 9 to 12 inches*Average annual air temperature:* 49 to 52 degrees F*Frost-free period:* 115 to 140 days**Taxonomic class:** Fine, montmorillonitic, mesic Xerollic  
Haplargids**Typical Pedon**

- E—0 to 3 inches; light brownish gray (10YR 6/2) loam, dark grayish brown (10YR 4/2) moist; weak medium platy structure parting to moderate fine granular; soft, very friable, slightly sticky and slightly plastic; many very fine, fine, and medium roots; common fine vesicular pores; mildly alkaline; clear smooth boundary.
- Bt1—3 to 10 inches; light brownish gray (10YR 6/2) clay loam, dark grayish brown (10YR 4/2) moist; weak fine subangular blocky structure; slightly hard, friable, sticky and plastic; many fine and medium roots; many medium tubular pores; few thin clay films on faces of peds and lining pores; mildly alkaline; abrupt smooth boundary.
- Bt2—10 to 19 inches; brown (10YR 5/3) clay, dark brown (10YR 4/3) moist; moderate medium prismatic structure parting to strong medium angular blocky; hard, firm, sticky and plastic; many very fine, fine, and medium roots; common medium tubular pores; many thick clay films on faces of peds and lining pores; mildly alkaline; clear smooth boundary.
- Btk—19 to 35 inches; yellowish brown (10YR 5/4)

sandy clay, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; slightly hard, firm, sticky and plastic; few fine and medium roots; few medium tubular pores; few thin clay films on faces of peds; slightly effervescent; mildly alkaline; clear smooth boundary.

Bk—35 to 43 inches; very pale brown (10YR 7/3) sandy loam, brown (10YR 5/3) moist; massive; loose; strongly effervescent; moderately alkaline; clear smooth boundary.

2C—43 to 60 inches; very pale brown (10YR 7/3) gravelly loamy sand, brown (10YR 5/3) moist; single grain; loose; 25 percent fine gravel; strongly effervescent; moderately alkaline.

#### Typical Pedon Location

*Map unit in which located:* Lanktree-Chilcott loams, 0 to 12 percent slopes

*Location in survey area:* About 12 miles northwest of Mountain Home, about 300 feet south and 600 feet east of the northwest corner of sec. 10, T. 2 S., R. 5 E.

#### Range in Characteristics

*Depth to secondary lime:* 15 to 26 inches

*E horizon:*

Value—5 to 7 dry, 3 to 5 moist

Chroma—2 or 3 dry or moist

*Bt horizon:*

Texture—clay loam, sandy clay, or clay

*2C horizon:*

Texture—loamy sand, sand, or gravelly loamy sand

Content of pebbles—0 to 25 percent

### Letha Series

*Depth class:* Very deep

*Drainage class:* Somewhat poorly drained

*Position on landscape:* Flood plains, stream terraces

*Parent material:* Mixed alluvium

*Slope:* 0 to 2 percent

*Elevation:* 2,300 to 2,800 feet

*Average annual precipitation:* 6 to 8 inches

*Average annual air temperature:* 51 to 53 degrees F

*Frost-free period:* 140 to 150 days

**Taxonomic class:** Coarse-loamy, mixed (calcareous), mesic Aeric Halaquepts

#### Typical Pedon

Ap—0 to 5 inches; light gray (10YR 7/2) loam, dark

grayish brown (10YR 4/2) moist; weak thin platy structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine tubular pores; strongly effervescent; strongly alkaline; abrupt smooth boundary.

A—5 to 10 inches; light gray (10YR 7/2) loam, dark grayish brown (10YR 4/2) moist; moderate fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; many very fine tubular pores; strongly effervescent; strongly alkaline; clear smooth boundary.

C1—10 to 24 inches; light gray (10YR 7/2) fine sandy loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable, nonsticky and slightly plastic; common very fine roots; few fine tubular pores; organic stains in root channels; strongly effervescent; strongly alkaline; clear smooth boundary.

C2—24 to 29 inches; very pale brown (10YR 8/3) fine sandy loam, brown (10YR 4/3) moist; common medium distinct dark yellowish brown (10YR 3/4 moist) mottles; weak medium subangular blocky structure; slightly hard, friable, nonsticky and slightly plastic; few fine roots; few fine tubular pores; strongly effervescent; strongly alkaline; clear smooth boundary.

C3—29 to 60 inches; very pale brown (10YR 8/3) fine sandy loam, brown (10YR 4/3) moist; common medium distinct dark yellowish brown (10YR 3/4 moist) mottles; massive; slightly hard, friable; few very fine roots; few very fine tubular pores; strongly effervescent; strongly alkaline.

#### Typical Pedon Location

*Map unit in which located:* Letha loam, 0 to 2 percent slopes

*Location in survey area:* About 3 miles southeast of Grand View, about 2,000 feet west and 100 feet south of the northeast corner of sec. 35, T. 5 S., R. 3 E.

#### Range in Characteristics

*Depth to mottles:* 20 to 30 inches

*Depth to water table:* 36 to 48 inches

*Particle-size control section:*

Content of clay—9 to 15 percent

Conductivity of saturation extract—4 to 16 millimhos

*A horizon:*

Hue—2.5Y or 10YR

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 4 dry or moist

*C horizon:*

Hue—2.5Y or 10YR

Value—6 to 8 dry, 4 to 6 moist

Chroma—2 or 3 dry or moist

Other characteristics—very gravelly sand below a depth of 40 inches in some pedons

*Bw horizon:*

Texture—fine sandy loam or sandy loam

Content of pebbles—10 to 35 percent

*Bk and 2C horizons:*

Texture—extremely gravelly loamy sand, extremely gravelly coarse sand, or extremely gravelly sand

Content of pebbles—60 to 80 percent

**Loray Series***Depth class:* Very deep*Drainage class:* Excessively drained*Position on landscape:* Alluvial terraces, fan terraces*Parent material:* Mixed alluvium*Slope:* 0 to 20 percent*Elevation:* 2,300 to 3,500 feet*Average annual precipitation:* 6 to 8 inches*Average annual air temperature:* 50 to 53 degrees F*Frost-free period:* 120 to 150 days**Taxonomic class:** Sandy-skeletal, mixed, mesic Typic Calciorthids**Typical Pedon**

A—0 to 6 inches; light yellowish brown (10YR 6/4) gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; weak medium and thick platy structure; soft, very friable; slightly effervescent; moderately alkaline; clear smooth boundary.

Bw—6 to 13 inches; very pale brown (10YR 7/3) gravelly sandy loam, brown (10YR 5/3) moist; massive; hard, friable, slightly sticky and slightly plastic; 15 percent coarse fragments; slightly effervescent; moderately alkaline; abrupt smooth boundary.

Bk—13 to 33 inches; variegated extremely gravelly sand; single grain; loose; lime pendants on gravel; 80 percent coarse fragments; violently effervescent; strongly alkaline; gradual smooth boundary.

2C—33 to 60 inches; variegated extremely gravelly sand; single grain; loose; slightly effervescent; strongly alkaline.

**Typical Pedon Location**

*Map unit in which located:* Loray-Dors complex, 8 to 20 percent slopes

*Location in survey area:* About 2 miles south of Bruneau, about 2,550 feet south and 2,600 feet east of the northwest corner of sec. 6, T. 7 S., R. 6 E.

**Range in Characteristics**

*Content of rock fragments in particle-size control section:* 60 to 70 percent

**Mazuma Series***Depth class:* Very deep*Drainage class:* Well drained*Position on landscape:* Fan terraces, low stream terraces*Parent material:* Mixed alluvium*Slope:* 0 to 30 percent*Elevation:* 2,300 to 3,100 feet*Average annual precipitation:* 6 to 8 inches*Average annual air temperature:* 50 to 52 degrees F*Frost-free period:* 130 to 150 days**Taxonomic class:** Coarse-loamy, mixed (calcareous), mesic Typic Torriorthents**Typical Pedon**

A—0 to 4 inches; pale brown (10YR 6/3) fine sandy loam, yellowish brown (10YR 5/4) moist; weak thin platy structure; soft, very friable, slightly sticky and slightly plastic; many very fine roots; many very fine tubular pores; strongly effervescent; moderately alkaline; gradual smooth boundary.

AC—4 to 16 inches; light gray (10YR 7/2) fine sandy loam, brown (10YR 5/3) moist; weak medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine roots; many very fine tubular pores; slightly effervescent; moderately alkaline; gradual smooth boundary.

C1—16 to 24 inches; very pale brown (10YR 7/3) fine sandy loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; many very fine roots; common very fine tubular pores; strongly effervescent; moderately alkaline; clear smooth boundary.

C2—24 to 33 inches; very pale brown (10YR 7/3) fine sandy loam, light yellowish brown (10YR 6/4) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; common very fine tubular pores; strongly effervescent; strongly alkaline; clear smooth boundary.

C3—33 to 40 inches; very pale brown (10YR 7/3) sandy loam, light yellowish brown (10YR 6/4) moist; massive; slightly hard, very friable, slightly sticky

and slightly plastic; few very fine roots; few very fine tubular pores; strongly effervescent; moderately alkaline; clear smooth boundary.

2C4—40 to 49 inches; very pale brown (10YR 7/3) loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few fine roots; few very fine tubular pores; violently effervescent; strongly alkaline; clear smooth boundary.

2C5—49 to 60 inches; very pale brown (10YR 7/3) loam, brown (10YR 5/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; few very fine tubular pores; violently effervescent; strongly alkaline.

#### Typical Pedon Location

*Map unit in which located:* Mazuma fine sandy loam, 0 to 4 percent slopes

*Location in survey area:* About 4 miles south of Grand View, about 300 feet north and 650 feet east of the southwest corner of sec. 5, T. 6 S., R. 3 E.

#### Range in Characteristics

*Texture of particle size control section:* Fine sandy loam or sandy loam

*Other characteristics:* In some pedons, thin strata of loamy sand to coarse sand that have as much as 25 percent gravel

### McKeeth Series

*Depth class:* Very deep

*Drainage class:* Somewhat excessively drained

*Position on landscape:* Dissected fan terraces

*Parent material:* Mixed alluvium

*Slope:* 2 to 12 percent

*Elevation:* 2,500 to 3,900 feet

*Average annual precipitation:* 6 to 8 inches

*Average annual air temperature:* 49 to 52 degrees F

*Frost-free period:* 120 to 150 days

**Taxonomic class:** Fine-loamy, mixed, mesic Duric Haplargids

#### Typical Pedon

E—0 to 3 inches; pale brown (10YR 6/3) gravelly loam, dark grayish brown (10YR 4/2) moist; weak medium platy structure; slightly hard, very friable; many very fine roots; many very fine vesicular pores; 20 percent pebbles; slightly effervescent; moderately alkaline; clear smooth boundary.

Bt—3 to 13 inches; brown (10YR 5/3) gravelly sandy clay loam, brown (10YR 4/3) moist; weak fine

subangular blocky structure; slightly hard, friable, sticky and plastic; many very fine roots; many very fine tubular pores; common thin clay films on faces of peds; 25 percent pebbles; slightly effervescent; moderately alkaline; abrupt smooth boundary.

2Bkq—13 to 24 inches; very pale brown (10YR 8/3) very gravelly sandy loam, brown (10YR 5/3) moist; massive; hard, firm; common very fine roots; discontinuous, strongly cemented duripan stratified with discontinuous silica laminae; 40 percent pebbles; coatings of lime and silica on underside of pebbles; violently effervescent; moderately alkaline; clear smooth boundary.

3Bk—24 to 32 inches; pale brown (10YR 6/3) very gravelly loamy sand, brown (10YR 4/3) moist; single grain; loose; many very fine roots; 55 percent pebbles; coatings of lime on underside of pebbles; violently effervescent; moderately alkaline; clear smooth boundary.

3C—32 to 60 inches; very pale brown (10YR 8/3) very gravelly loamy sand, brown (10YR 5/3) moist; single grain; loose; few very fine roots; 55 percent pebbles; strongly effervescent; moderately alkaline.

#### Typical Pedon Location

*Map unit in which located:* McKeeth gravelly loam, 2 to 12 percent slopes

*Location in survey area:* About 5 miles northwest of Oreana, about 2,590 feet south and 1,150 feet east of the northwest corner of sec. 7, T. 4 S., R. 1 W.

#### Range in Characteristics

*Depth to the partially cemented layer:* 10 to 25 inches

*Bt horizon:*

Value—5 to 7 dry, 3 or 4 moist

Chroma—2 to 4 dry or moist

Texture—gravelly loam, gravelly sandy clay loam, or gravelly clay loam

Content of pebbles—20 to 35 percent

Content of clay—25 to 35 percent

*3Bk horizon:*

Texture—very gravelly loamy sand, very gravelly sand, or extremely gravelly coarse sand

Content of pebbles and cobbles—40 to 70 percent

*3C horizon:*

Content of pebbles and cobbles—40 to 80 percent

### Minidoka Series

*Depth class:* Moderately deep (to a duripan)

*Drainage class:* Well drained

*Position on landscape:* Basalt plains

*Parent material:* Loess and silty alluvium derived from various kinds of rock

*Slope:* 0 to 12 percent

*Elevation:* 2,900 to 4,300 feet

*Average annual precipitation:* 8 to 11 inches

*Average annual air temperature:* 49 to 52 degrees F

*Frost-free period:* 110 to 140 days

**Taxonomic class:** Coarse-silty, mixed, mesic Xerollic Durorthids

#### Typical Pedon

A—0 to 4 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; weak thin platy structure; soft, very friable; 5 percent pebbles; mildly alkaline; clear smooth boundary.

Bw—4 to 12 inches; brown (10YR 4/3) silt loam, dark brown (10YR 3/3) moist; strong thick platy structure; hard, friable; 5 percent pebbles; mildly alkaline; abrupt smooth boundary.

Bk—12 to 17 inches; brown (10YR 5/3) silt loam, dark brown (10YR 4/3) moist; massive; slightly hard, firm; 5 percent pebbles; strongly effervescent; moderately alkaline; gradual smooth boundary.

Bkq—17 to 27 inches; white (10YR 8/2) silt loam, very pale brown (10YR 7/3) moist; massive; slightly hard, friable; 5 percent pebbles; strongly effervescent; moderately alkaline; abrupt smooth boundary.

Bkqm—27 to 43 inches; white (10YR 8/2), indurated duripan consisting of plates 0.5 inch to 4.0 inches thick; laminar silica cap 2 millimeters thick; root mat at top; silt loam between plates; moderately effervescent; moderately alkaline; abrupt smooth boundary.

C—43 to 60 inches; alternate layers of white silt loam and indurated material (hardpan).

#### Typical Pedon Location

*Map unit in which located:* Minidoka-Minveno silt loams, 0 to 4 percent slopes

*Location in survey area:* About 5 miles east of Glenns Ferry, about 400 feet north and 100 feet east of the southwest corner of sec. 30, T. 5 S., R. 11 E.

#### Range in Characteristics

*Depth to duripan:* 20 to 40 inches

*Depth to secondary lime:* 6 to 16 inches

*Content of pebbles:* 0 to 15 percent

*Other characteristics:* Bw horizon absent in some pedons

*A horizon:*

Value—5 to 7 dry, 3 to 5 moist

Chroma—2 to 4 dry or moist

*Bw horizon:*

Value—4 to 6 dry

Chroma—2 or 3 dry or moist

*Bk and Bkq horizons:*

Value—5 to 7 dry

Chroma—2 to 4 dry or moist

Texture—silt loam, loam, or very fine sandy loam

#### Minveno Series

*Depth class:* Shallow (to a duripan)

*Drainage class:* Well drained

*Position on landscape:* Basalt plains

*Parent material:* Loess and silty alluvium derived from various kinds of rock

*Slope:* 0 to 8 percent

*Elevation:* 2,900 to 4,300 feet

*Average annual precipitation:* 8 to 11 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free period:* 110 to 130 days

**Taxonomic class:** Loamy, mixed, mesic, shallow Xerollic Durorthids

#### Typical Pedon

A1—0 to 1 inch; light brownish gray (10YR 6/2) stony silt loam, dark grayish brown (10YR 4/2) moist; weak fine granular structure; soft, very friable; 5 percent stones; mildly alkaline; abrupt smooth boundary.

A2—1 to 4 inches; light brownish gray (10YR 6/2) stony silt loam, brown (10YR 4/3) moist; weak thin and medium platy structure; soft, very friable; 5 percent stones; mildly alkaline; clear smooth boundary.

Bw—4 to 8 inches; brown (10YR 5/3) stony silt loam, dark brown (10YR 4/3) moist; weak medium prismatic structure; slightly hard, friable; 5 percent stones; mildly alkaline; abrupt smooth boundary.

Bk—8 to 14 inches; white (10YR 8/2) loam, very pale brown (10YR 7/3) moist; massive; slightly hard, friable; violently effervescent; moderately alkaline; abrupt smooth boundary.

Bkqm—14 to 21 inches; white (10YR 8/2), indurated duripan, light gray (10YR 7/2) moist; pan consists of thick plates; yellowish brown (10YR 5/4) root mat at top; violently effervescent; strongly alkaline.

R—21 inches; unweathered basalt.

#### Typical Pedon Location

*Map unit in which located:* Colthorp-Minveno stony silt loams, 0 to 8 percent slopes

*Location in survey area:* About 7 miles southeast of Mountain Home, about 2,600 feet south and 20 feet west of the northeast corner of sec. 33, T. 4 S., R. 7 E.

#### Range in Characteristics

*Depth to duripan:* 10 to 20 inches

*Depth to bedrock:* 20 to 40 inches

#### A horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

#### Bw horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Texture—silt loam, loam, or very fine sandy loam

### Monroe Series

*Depth class:* Very deep

*Drainage class:* Well drained

*Position on landscape:* Flood plains, fan terraces

*Parent material:* Mixed alluvium

*Slope:* 0 to 2 percent

*Elevation:* 2,500 to 5,200 feet

*Average annual precipitation:* 11 to 14 inches

*Average annual air temperature:* 47 to 52 degrees F

*Frost-free period:* 110 to 140 days

**Taxonomic class:** Fine-loamy, mixed, mesic Cumulic Haploxerolls

#### Typical Pedon

A1—0 to 8 inches; dark grayish brown (10YR 4/2) sandy loam, very dark brown (10YR 2/2) moist; weak medium granular structure; soft, very friable, slightly sticky; common very fine and fine roots; mildly alkaline; abrupt smooth boundary.

A2—8 to 14 inches; dark gray (10YR 4/1) loam, black (10YR 2/1) moist; weak medium platy structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; mildly alkaline; abrupt wavy boundary.

A3—14 to 23 inches; dark grayish brown (10YR 4/2) loam, very dark brown (10YR 2/2) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; mildly alkaline; abrupt wavy boundary.

C1—23 to 36 inches; gray (10YR 5/1) loam, very dark gray (10YR 3/1) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very

fine roots; slightly effervescent; mildly alkaline; abrupt smooth boundary.

C2—36 to 60 inches; gray (10YR 6/1) sandy loam, dark gray (10YR 4/1) moist; massive; hard, firm, slightly sticky and slightly plastic; mildly alkaline.

#### Typical Pedon Location

*Map unit in which located:* Monroe-Jenness complex, 0 to 2 percent slopes

*Location in survey area:* About 14 miles northwest of Mountain Home, about 320 feet south and 300 feet east of the northwest corner of sec. 17, T. 1 S., R. 6 E.

#### Range in Characteristics

#### Particle-size control section:

Texture—sandy loam or loam

Content of clay—18 to 27 percent

#### A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 to 3 dry or moist

#### C horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—1 to 4 dry or moist

Texture—dominantly sandy loam or loam, but includes thin strata of loamy sand to silt loam

Content of pebbles—0 to 15 percent

Other characteristics—strata of very gravelly material below a depth of 40 inches in some pedons

### Moran Series

*Depth class:* Deep

*Drainage class:* Well drained

*Position on landscape:* Mountainsides

*Parent material:* Alluvium and colluvium derived from gneiss and intermediate intrusive rock

*Slope:* 10 to 50 percent

*Elevation:* 6,500 to 8,200 feet

*Average annual precipitation:* 28 to 35 inches

*Average annual air temperature:* 35 to 38 degrees F

*Frost-free season:* 40 to 55 days

**Taxonomic class:** Loamy-skeletal, mixed Typic Cryumbrepts

#### Typical Pedon

A—0 to 7 inches; dark grayish brown (10YR 4/2) gravelly sandy loam, dark brown (7.5YR 3/2) moist;



weak fine granular structure; loose, very friable; many fine and medium roots and common coarse roots; many very fine and fine interstitial pores and common fine tubular pores; 20 percent pebbles; strongly acid; gradual smooth boundary.

**Bw1**—7 to 20 inches; brown (10YR 4/3) gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; loose, very friable, slightly sticky and nonplastic; many fine roots and common medium and coarse roots; many very fine interstitial pores and common fine tubular pores; 20 percent pebbles and 5 percent stones; very strongly acid; clear smooth boundary.

**Bw2**—20 to 41 inches; brown (10YR 5/3) very stony sandy loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; loose, very friable; few fine and common medium roots; many very fine interstitial pores and common fine tubular pores; 30 percent pebbles and 20 percent stones; very strongly acid; clear smooth boundary.

**R**—41 inches; unweathered gneiss.

#### Typical Pedon Location

*Map unit in which located:* Moran-Teewinot-Coski complex, 10 to 50 percent slopes

*Location in survey area:* About 6 miles southeast of Prairie, about 1,300 feet west and 2,300 feet south of the northeast corner of sec. 10, T. 1 N., R. 8 E.

#### Range in Characteristics

*Depth to bedrock:* 40 to 60 inches

*Thickness of umbric epipedon:* 10 to 20 inches

*Particle-size control section:*

Content of rock fragments—35 to 60 percent

Content of clay—12 to 20 percent

*A horizon:*

Hue—10YR or 7.5YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

*Bw1 horizon:*

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 to 4 dry or moist

Texture—gravelly sandy loam, gravelly sandy clay loam, or very gravelly sandy loam

Content of pebbles and cobbles—10 to 30 percent

Content of stones—5 to 10 percent

*Bw2 horizon:*

Value—5 to 8 dry, 3 to 7 moist

Chroma—3 or 4 dry or moist

Texture—very gravelly sandy loam or very stony sandy loam

Content of pebbles and cobbles—20 to 60 percent

Content of stones—5 to 20 percent

### Oland Series

*Depth class:* Very deep

*Drainage class:* Well drained

*Position on landscape:* Fan terraces, granitic hills

*Parent material:* Alluvium derived from igneous and metamorphic rock

*Slope:* 2 to 70 percent

*Elevation:* 4,000 to 5,500 feet

*Average annual precipitation:* 15 to 21 inches

*Average annual air temperature:* 45 to 49 degrees F

*Frost-free period:* 90 to 120 days

**Taxonomic class:** Loamy-skeletal, mixed, mesic Pachic Ultic Haploxerolls

#### Typical Pedon

**A**—0 to 17 inches; dark grayish brown (10YR 4/2) gravelly loam, very dark gray (10YR 3/1) moist; weak fine granular structure; loose, very friable, slightly sticky and slightly plastic; many very fine roots, common fine roots, and few medium roots; common very fine and fine tubular pores and many very fine interstitial pores; 15 percent pebbles and 10 percent cobbles; neutral; gradual smooth boundary.

**Bw**—17 to 23 inches; dark brown (10YR 4/3) very cobbly loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure parting to moderate medium and coarse granular; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine and fine tubular and interstitial pores; 30 percent pebbles and 25 percent cobbles; neutral; clear smooth boundary.

**C**—23 to 60 inches; light yellowish brown (10YR 6/4) very cobbly sandy loam, dark yellowish brown (10YR 4/4) moist; weak medium and coarse granular structure; loose, very friable, nonsticky and nonplastic; common very fine and few fine roots; common very fine and fine tubular and interstitial pores; 25 percent pebbles, 15 percent cobbles, and 5 percent stones; slightly acid.

#### Typical Pedon Location

*Map unit in which located:* Rainey-Schoolhouse-Oland association, 30 to 70 percent slopes

*Location in survey area:* About 16 miles northeast of Mountain Home, about 2,400 feet south and 1,150

feet east of the northwest corner of sec. 6, T. 1 S., R. 8 E.

#### Range in Characteristics

*Thickness of mollic epipedon:* 20 to 30 inches  
*Content of rock fragments in particle-size control section:* 35 to 60 percent

#### A horizon:

Hue—7.5YR or 10YR  
 Value—4 or 5 dry, 2 or 3 moist  
 Chroma—1 to 3 dry or moist

#### Bw horizon:

Hue—7.5YR or 10YR  
 Value—4 or 5 dry, 2 or 3 moist  
 Chroma—2 or 3 dry or moist  
 Texture—very gravelly loam, gravelly loam, cobbly loam, or very cobbly loam

#### C horizon:

Texture—very gravelly sandy loam, very cobbly sandy loam, extremely gravelly sandy loam, or very gravelly loam  
 Content of pebbles and cobbles—35 to 70 percent

### Ornea Series

*Depth class:* Very deep

*Drainage class:* Well drained

*Position on landscape:* Dissected fan terraces

*Parent material:* Mixed alluvium

*Slope:* 2 to 40 percent

*Elevation:* 2,300 to 3,500 feet

*Average annual precipitation:* 6 to 9 inches

*Average annual air temperature:* 49 to 53 degrees F

*Frost-free period:* 120 to 150 days

**Taxonomic class:** Fine-loamy over sandy or sandy-skeletal, mixed, mesic Typic Haplargids

#### Typical Pedon

A—0 to 5 inches; very pale brown (10YR 7/3) gravelly loam, brown (10YR 5/3) moist; strong very thin platy structure; soft, very friable, slightly sticky and nonplastic; common very fine roots; common very fine tubular pores; 20 percent pebbles; strongly alkaline; abrupt smooth boundary.

Bt—5 to 9 inches; very pale brown (10YR 8/3) gravelly loam, pale brown (10YR 6/3) moist; moderate coarse prismatic structure; hard, firm, slightly sticky and plastic; common very fine roots; common very fine tubular pores; many moderately thick clay films on faces of peds; 15 percent pebbles; slightly

effervescent; strongly alkaline; clear smooth boundary.

Btk—9 to 12 inches; very pale brown (10YR 7/3) gravelly clay loam, light yellowish brown (10YR 6/4) moist; weak medium subangular blocky structure; hard, friable, sticky and plastic; common very fine roots; common very fine and fine tubular pores; common moderately thick clay films on faces of peds; 20 percent pebbles; strongly effervescent; strongly alkaline; clear wavy boundary.

2Bk—12 to 26 inches; very pale brown (10YR 7/3) very gravelly coarse sand, light yellowish brown (10YR 6/4) moist; single grain; loose; common very fine roots; common very fine interstitial pores; 40 percent pebbles; strongly effervescent; strongly alkaline; gradual wavy boundary.

2C—26 to 60 inches; variegated extremely gravelly coarse sand; single grain; loose; few very fine roots; many very fine interstitial pores; 75 percent pebbles; strongly alkaline.

#### Typical Pedon Location

*Map unit in which located:* Ornea gravelly loam, 2 to 8 percent slopes

*Location in survey area:* About 5 miles east of Oreana, about 2,500 feet north and 500 feet west of the southeast corner of sec. 36, T. 4 S., R. 1 E.

#### Range in Characteristics

*Depth to underlying coarse material:* 10 to 20 inches

#### A horizon:

Value—6 or 7 dry  
 Chroma—2 or 3 dry or moist

#### Bt and Btk horizons:

Value—6 to 8 dry  
 Chroma—2 to 4 dry or moist  
 Texture—gravelly sandy clay loam, gravelly loam, or gravelly clay loam  
 Content of pebbles—15 to 35 percent

#### 2C horizon:

Content of pebbles—35 to 80 percent

### Owsel Series

*Depth class:* Very deep

*Drainage class:* Well drained

*Position on landscape:* Alluvial plains, basalt plains

*Parent material:* Loess and alluvium derived from various kinds of rock

*Slope:* 0 to 12 percent

*Elevation:* 2,700 to 4,400 feet

*Average annual precipitation:* 8 to 10 inches

*Average annual air temperature:* 48 to 51 degrees F

*Frost-free period:* 110 to 140 days

**Taxonomic class:** Fine-silty, mixed, mesic Durixerollic  
Haplargids

### Typical Pedon

A—0 to 4 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; weak thin platy structure parting to moderate fine granular; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; neutral; abrupt smooth boundary.

Bt1—4 to 8 inches; brown (10YR 5/3) silty clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many fine roots; common thin clay films on faces of peds; neutral; clear smooth boundary.

Bt2—8 to 14 inches; brown (10YR 5/3) silty clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and slightly plastic; many fine roots; common thin clay films on faces of peds; mildly alkaline; clear smooth boundary.

Bt3—14 to 18 inches; brown (10YR 5/3) silt loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; few thin clay films on faces of peds; mildly alkaline; clear smooth boundary.

Bkq1—18 to 23 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; massive; hard, friable, slightly sticky and slightly plastic; few very fine roots; 25 percent durinodes; strongly effervescent; moderately alkaline; clear wavy boundary.

Bkq2—23 to 36 inches; light yellowish brown (10YR 6/4) loam, brown (10YR 4/3) moist; massive; very hard, friable, slightly sticky and slightly plastic; few very fine roots; 40 percent durinodes; violently effervescent; moderately alkaline; gradual wavy boundary.

C—36 to 60 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; massive; hard, friable; violently effervescent; moderately alkaline.

### Typical Pedon Location

*Map unit in which located:* Owsel-Purdam complex, 1 to 12 percent slopes

*Location in survey area:* About 15 miles southeast of Bruneau, about 1,850 feet north and 400 feet west of the southeast corner of sec. 32, T. 8 S., R. 7 E.

### Range in Characteristics

*Bt horizon:*

Value—5 or 6 dry

Chroma—2 or 3 dry or moist

Texture—silt loam or silty clay loam

Content of clay—24 to 35 percent

*Bkq and C horizons:*

Texture—dominantly fine sandy loam or very fine sandy loam, but includes strata of loam or silt loam

### Perazzo Series

*Depth class:* Very deep

*Drainage class:* Somewhat excessively drained

*Position on landscape:* Dissected fan terraces

*Parent material:* Mixed alluvium

*Slope:* 2 to 40 percent

*Elevation:* 2,400 to 4,000 feet

*Average annual precipitation:* 6 to 8 inches

*Average annual air temperature:* 50 to 52 degrees F

*Frost-free period:* 120 to 140 days

**Taxonomic class:** Loamy-skeletal, mixed, mesic Typic  
Haplargids

### Typical Pedon

A1—0 to 2 inches; light gray (10YR 7/2) very gravelly sandy loam, brown (10YR 5/3) moist; strong thin platy structure; soft, very friable; 35 percent pebbles and 15 percent cobbles; slightly effervescent; mildly alkaline; abrupt smooth boundary.

A2—2 to 4 inches; light gray (10YR 7/2) very gravelly silt loam, brown (10YR 5/3) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine vesicular pores; 30 percent pebbles and 15 percent cobbles; strongly effervescent; mildly alkaline; clear smooth boundary.

Bt—4 to 8 inches; light yellowish brown (10YR 6/4) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate coarse subangular blocky structure; hard, friable, sticky and plastic; many moderately thick clay films on faces of peds; 30 percent pebbles and 15 percent cobbles; mildly alkaline; gradual wavy boundary.

Btk—8 to 12 inches; very pale brown (10YR 8/3) very gravelly loam, yellowish brown (10YR 5/4) moist; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few thin clay films on faces of peds and bridging sand grains; 30 percent pebbles and 15 percent

cobbles; strongly effervescent; mildly alkaline; gradual wavy boundary.

**Bk1**—12 to 18 inches; very pale brown (10YR 7/3) extremely gravelly sandy loam, yellowish brown (10YR 5/4) moist; massive; soft, very friable; 60 percent pebbles and 15 percent cobbles; violently effervescent; mildly alkaline; gradual wavy boundary.

**Bk2**—18 to 60 inches; very pale brown (10YR 7/3) extremely gravelly loamy sand, yellowish brown (10YR 5/4) moist; single grain; loose; 60 percent pebbles and 15 percent cobbles; violently effervescent; moderately alkaline.

#### **Typical Pedon Location**

*Map unit in which located:* Perazzo-Ornea-Abgese complex, 12 to 40 percent slopes

*Location in survey area:* About 4 miles northwest of Grand View, about 1,300 feet south and 50 feet east of the northwest corner of sec. 29, T. 4 S., R. 3 E.

#### **Range in Characteristics**

*Depth to extremely gravelly loamy sand or extremely gravelly sand:* 10 to 20 inches

*A horizon:*

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

*Bt horizon:*

Value—5 or 6 dry, 4 or 5 moist

Chroma—3 or 4 dry or moist

Texture—very gravelly clay loam or very gravelly sandy clay loam

Content of pebbles and cobbles—35 to 50 percent

### **Power Series**

*Depth class:* Very deep

*Drainage class:* Well drained

*Position on landscape:* Alluvial plains, basalt plains, alluvial terraces

*Parent material:* Loess and silty alluvium derived from various kinds of rock

*Slope:* 0 to 12 percent

*Elevation:* 2,500 to 4,100 feet

*Average annual precipitation:* 8 to 11 inches

*Average annual air temperature:* 49 to 52 degrees F

*Frost-free period:* 110 to 140 days

**Taxonomic class:** Fine-silty, mixed, mesic Xerollic Haplargids

#### **Typical Pedon**

**A**—0 to 2 inches; light brownish gray (10YR 6/2) silt loam, dark grayish brown (10YR 4/2) moist; weak medium platy structure; slightly hard, friable; neutral; abrupt smooth boundary.

**E**—2 to 6 inches; light gray (10YR 7/2) silt loam, dark grayish brown (10YR 4/2) moist; weak medium platy structure; slightly hard, friable; neutral; abrupt smooth boundary.

**Bt1**—6 to 12 inches; brown (10YR 5/3) clay loam, dark brown (10YR 3/3) moist; moderate medium angular blocky structure; hard, firm; common moderately thick clay films on faces of peds; mildly alkaline; clear smooth boundary.

**Bt2**—12 to 19 inches; pale brown (10YR 6/3) clay loam, dark brown (10YR 4/3) moist; moderate fine subangular blocky structure; hard, firm; many thick clay films on faces of peds; mildly alkaline; abrupt smooth boundary.

**Bw1**—19 to 22 inches; light gray (10YR 7/2) loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable; moderately alkaline; gradual smooth boundary.

**Bw2**—22 to 26 inches; light gray (10YR 7/2) loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable; moderately alkaline; abrupt smooth boundary.

**Bk**—26 to 60 inches; white (10YR 8/2) loam, pale brown (10YR 6/3) moist; massive; hard, firm; violently effervescent; moderately alkaline.

#### **Typical Pedon Location**

*Map unit in which located:* Power-Chardoton complex, 0 to 4 percent slopes

*Location in survey area:* About 1 mile southwest of Mountain Home, about 220 feet south and 800 feet east of the northwest corner of sec. 6, T. 4 S., R. 7 E.

#### **Range in Characteristics**

*Depth to secondary lime:* 14 to 37 inches

*Content of durinodes:* 0 to 15 percent

*A horizon:*

Value—5 to 7 dry

Chroma—2 or 3 dry or moist

*Bt and Bw horizons:*

Value—5 to 7 dry

Chroma—3 or 4 dry or moist

Texture—loam, silt loam, silty clay loam, or clay loam

**Purdam Series**

*Depth class:* Moderately deep (to a duripan)

*Drainage class:* Well drained

*Position on landscape:* Basalt plains, alluvial plains

*Parent material:* Loess and silty alluvium derived from various kinds of rock

*Slope:* 0 to 12 percent

*Elevation:* 2,800 to 4,500 feet

*Average annual precipitation:* 8 to 11 inches

*Average annual air temperature:* 49 to 52 degrees F

*Frost-free period:* 110 to 140 days

**Taxonomic class:** Fine-silty, mixed, mesic Haploxerollic Durargids

**Typical Pedon**

- A1—0 to 2 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; weak thin platy structure; soft, very friable; neutral; clear smooth boundary.
- A2—2 to 6 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; weak medium angular blocky structure; slightly hard, friable; neutral; clear smooth boundary.
- Bt1—6 to 10 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 4/3) moist; strong fine subangular blocky structure; hard, friable; few thin clay films on faces of peds; mildly alkaline; clear wavy boundary.
- Bt2—10 to 15 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 4/3) moist; strong medium subangular blocky structure; hard, friable; common moderately thick clay films on faces of peds; moderately alkaline; clear wavy boundary.
- Bt3—15 to 21 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; strong medium subangular blocky structure; hard, friable; common moderately thick clay films on faces of peds; few weakly cemented nodules ¼ inch in diameter; moderately alkaline; clear wavy boundary.
- Bkqm1—21 to 34 inches; very pale brown (10YR 8/3), weakly cemented duripan, light gray (10YR 7/2) moist; massive; very hard, very firm; strongly effervescent; moderately alkaline; clear wavy boundary.
- Bkqm2—34 to 40 inches; very pale brown (10YR 8/3), weakly cemented duripan, pale brown (10YR 6/3) moist; massive; very hard, very firm; moderately alkaline; strongly effervescent; gradual smooth boundary.
- C—40 to 60 inches; stratified sandy loam, loamy sand, and loam; slightly effervescent; moderately alkaline.

**Typical Pedon Location**

*Map unit in which located:* Purdam silt loam, 4 to 8 percent slopes

*Location in survey area:* About 7 miles northeast of Glenns Ferry, about 60 feet south and 1,320 feet west of the northeast corner of sec. 15, T. 5 S., R. 11 E.

**Range in Characteristics**

*Depth to duripan:* 20 to 40 inches

*Bt horizon:*

Texture—silt loam or silty clay loam

Content of clay—25 to 32 percent

*C horizon:*

Texture—silt loam to sand that is stratified in some areas

**Quartzburg Series**

*Depth class:* Moderately deep

*Drainage class:* Excessively drained

*Position on landscape:* Mountainsides

*Parent material:* Alluvium and colluvium derived from intermediate intrusive rock

*Slope:* 35 to 70 percent

*Elevation:* 4,500 to 6,800 feet

*Average annual precipitation:* 23 to 30 inches

*Average annual air temperature:* 42 to 45 degrees F

*Frost-free season:* 40 to 60 days

**Taxonomic class:** Sandy-skeletal, mixed, frigid Ultic Haploxerolls

**Typical Pedon**

- O—0.5 inch to 0; duff that includes scattered pine needles.
- A—0 to 6 inches; grayish brown (10YR 5/2) gravelly loamy sand, very dark grayish brown (10YR 3/2) moist; weak very fine granular structure; soft, friable; common very fine roots; common very fine tubular and interstitial pores; 15 percent fine and medium pebbles; slightly acid; abrupt wavy boundary.
- Bw—6 to 15 inches; light brownish gray (10YR 6/2) gravelly loamy sand, brown (10YR 4/3) moist; weak very fine granular structure; soft, very friable; common fine and medium roots; few very fine tubular and interstitial pores; 25 percent pebbles and 5 percent cobbles; slightly acid; clear wavy boundary.
- C1—15 to 25 inches; pale brown (10YR 6/3) very gravelly loamy coarse sand, dark yellowish brown

(10YR 4/4) moist; massive; soft, very friable; few medium roots; many very fine and fine interstitial pores; 25 percent pebbles and 10 percent cobbles; slightly acid; gradual wavy boundary.

C2—25 to 36 inches; very pale brown (10YR 7/3) extremely gravelly loamy coarse sand, yellowish brown (10YR 5/4) moist; single grain; loose, very friable; few medium roots; many very fine interstitial pores; 45 percent pebbles and 20 percent cobbles; slightly acid; abrupt irregular boundary.

R—36 inches; slightly weathered, fractured granodiorite.

#### Typical Pedon Location

Map unit in which located: Quartzburg-Wagontown complex, 35 to 70 percent slopes

Location in survey area: About 1 mile west of Featherville, about 2,550 feet north and 800 feet east of the southwest corner of sec. 9, T. 3 N., R. 10 E.

#### Range in Characteristics

Depth to bedrock: 20 to 40 inches

Content of rock fragments: 35 to 80 percent

A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Bw and C horizons:

Value—6 or 7 dry, 3 or 4 moist

Texture—gravelly loamy sand, very gravelly loamy sand, very gravelly loamy coarse sand, or extremely gravelly loamy coarse sand

### Quincy Series

Depth class: Very deep

Drainage class: Excessively drained

Position on landscape: Dunes, alluvial terraces

Parent material: Eolian sand derived from various kinds of rock

Slope: 0 to 30 percent

Elevation: 2,500 to 3,600 feet

Average annual precipitation: 7 to 10 inches

Average annual air temperature: 49 to 52 degrees F

Frost-free period: 120 to 140 days

**Taxonomic class:** Mixed, mesic Xeric Torripsamments

#### Typical Pedon (fig. 12)

C1—0 to 3 inches; light gray (10YR 7/2) fine sand, grayish brown (10YR 5/2) moist; single grain; loose; common very fine and few medium roots; moderately alkaline; abrupt wavy boundary.

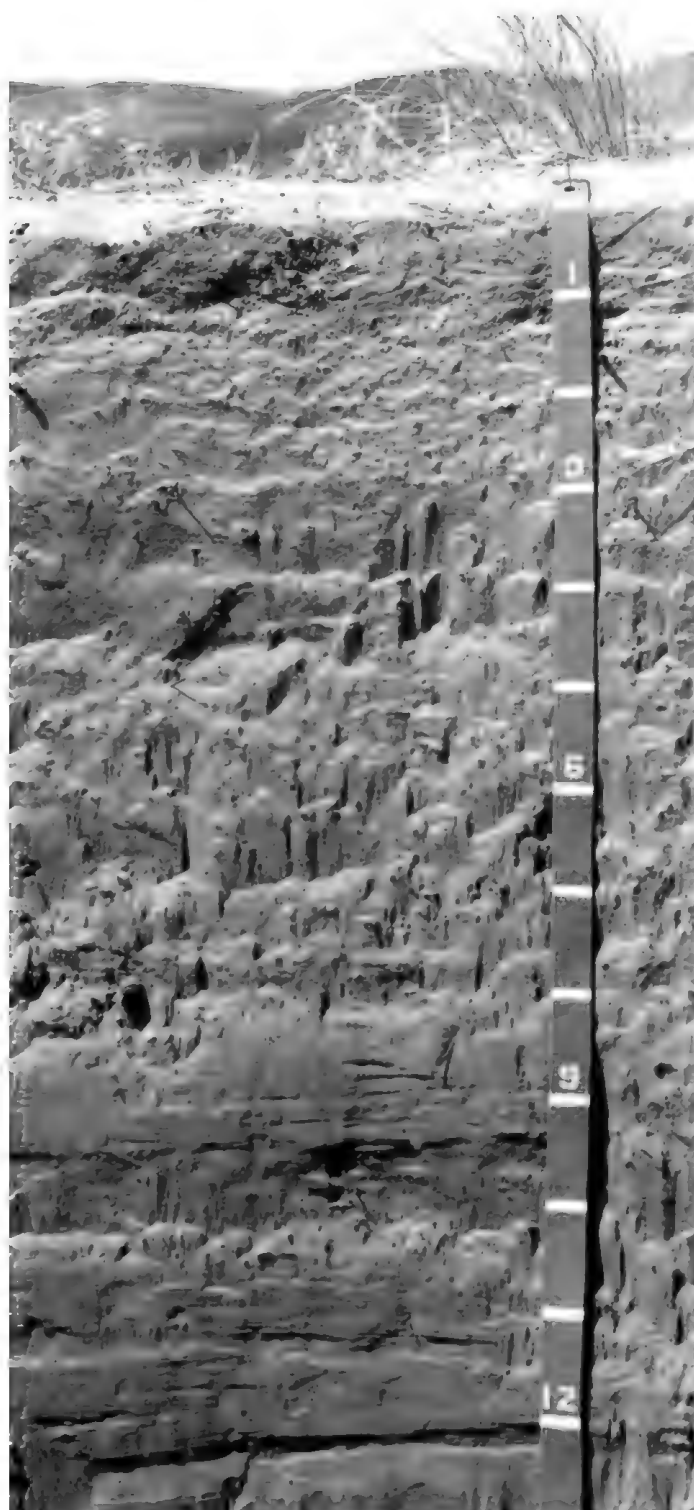


Figure 12.—Profile of Quincy fine sand, 0 to 12 percent slopes, in an area near Bruneau Sand Dunes State Park (numerals on tape indicate decimeters; 1 decimeter equals 3.94 inches). Note the stratification of the windlaid deposits.

C2—3 to 32 inches; light gray (10YR 7/2) fine sand, grayish brown (10YR 5/2) moist; single grain; loose; common fine and medium roots; moderately alkaline; abrupt wavy boundary.

C3—32 to 60 inches; light gray (10YR 7/2) fine sand, grayish brown (10YR 5/2) moist; single grain; loose; few fine roots; moderately alkaline.

#### Typical Pedon Location

*Map unit in which located:* Quincy fine sand, 0 to 12 percent slopes

*Location in survey area:* About 4 miles east of Bruneau, about 180 feet south and 30 feet west of the northeast corner of sec. 22, T. 6 S., R. 6 E.

#### Range in Characteristics

*Value:* 4 to 7 dry, 3 to 5 moist

*Chroma:* 2 or 3 dry or moist

*Particle-size control section:*

Texture—fine sand, sand, loamy sand, or loamy fine sand

Effervescence—noneffervescent or slightly effervescent

### Rainey Series

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Position on landscape:* Granitic hills

*Parent material:* Alluvium and residuum derived from intermediate intrusive rock

*Slope:* 10 to 60 percent

*Elevation:* 3,300 to 5,500 feet

*Average annual precipitation:* 14 to 20 inches

*Average annual air temperature:* 45 to 49 degrees F

*Frost-free period:* 85 to 120 days

**Taxonomic class:** Coarse-loamy, mixed, mesic Entic Haploxerolls

#### Typical Pedon

A—0 to 9 inches; dark grayish brown (10YR 4/2) sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; soft, very friable; many very fine roots; common very fine interstitial pores; neutral; gradual smooth boundary.

AC—9 to 14 inches; brown (10YR 5/3) gravelly coarse sandy loam, very dark grayish brown (10YR 3/2) moist; weak coarse granular structure; soft, very friable; common very fine and few fine roots; common very fine interstitial and tubular pores; neutral; clear wavy boundary.

C—14 to 22 inches; very pale brown (10YR 7/3) gravelly coarse sandy loam, brown (10YR 5/3) moist; massive; slightly hard, very friable; common very fine roots; common very fine interstitial pores and few very fine tubular pores; neutral; gradual irregular boundary.

Cr—22 to 32 inches; highly weathered quartz-diorite; very hard, extremely firm; roots in cracks; gradual irregular boundary.

R—32 inches; unweathered quartz-diorite.

#### Typical Pedon Location

*Map unit in which located:* Rainey-Brownlee association, 10 to 50 percent slopes

*Location in survey area:* About 16 miles north of Mountain Home, about 1,450 feet north and 2,250 feet east of the southwest corner of sec. 34, T. 1 N., R. 6 E.

#### Range in Characteristics

*Depth to bedrock:* 20 to 40 inches

*Thickness of mollic epipedon:* 7 to 15 inches

*Particle-size control section:*

Texture—coarse sandy loam, sandy loam, loam, gravelly coarse sandy loam, or gravelly sandy loam

Content of pebbles—5 to 35 percent

Content of clay—8 to 18 percent

*A horizon:*

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 or 2 dry or moist

*C horizon:*

Value—6 or 7 dry, 4 or 5 moist

Chroma—3 or 4 dry or moist

Texture—gravelly coarse sandy loam, gravelly sandy loam, or gravelly loam

### Roanhide Series

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Position on landscape:* Granitic hills

*Parent material:* Alluvium and colluvium derived from intermediate intrusive rock

*Slope:* 10 to 60 percent

*Elevation:* 4,000 to 6,400 feet

*Average annual precipitation:* 14 to 20 inches

*Average annual air temperature:* 40 to 45 degrees F

*Frost-free period:* 50 to 90 days

**Taxonomic class:** Coarse-loamy, mixed, frigid Ultic Haploxerolls

#### Typical Pedon

- A1—0 to 4 inches; gray (10YR 5/1) sandy loam, very dark gray (10YR 3/1) moist; moderate fine granular structure; loose, very friable; slightly acid; clear smooth boundary.
- A2—4 to 8 inches; grayish brown (10YR 5/2) sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable; 10 percent pebbles; slightly acid; clear smooth boundary.
- Bw—8 to 12 inches; grayish brown (10YR 5/2) sandy loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; soft, very friable, slightly sticky; 10 percent pebbles; slightly acid; clear wavy boundary.
- C—12 to 32 inches; light gray (10YR 7/2) sandy loam, grayish brown (10YR 5/2) moist; massive; soft, friable, slightly sticky; slightly acid; clear smooth boundary.
- R—32 inches; granodiorite.

#### Typical Pedon Location

*Map unit in which located:* Roanhide-Bauscher-Schoolhouse association, 10 to 60 percent slopes

*Location in survey area:* About 27 miles northeast of Mountain Home, about 1,825 feet south and 650 feet east of the northwest corner of sec. 28, T. 2 S., R. 11 E.

#### Range in Characteristics

*Depth to bedrock:* 20 to 40 inches

*Content of pebbles:* 10 to 20 percent

#### A horizon:

Value—4 or 5 dry

Chroma—1 or 2 dry or moist

#### Bw horizon:

Value—4 to 7 dry

Chroma—2 to 4 dry or moist

Texture—sandy loam, coarse sandy loam, or gravelly coarse sandy loam

Content of pebbles—5 to 25 percent

#### C horizon:

Value—6 or 7 dry

Chroma—2 or 3 dry or moist

Texture—sandy loam, coarse sandy loam, gravelly sandy loam, or gravelly coarse sandy loam

Content of pebbles—10 to 30 percent

### Royal Series

*Depth class:* Very deep

*Drainage class:* Well drained

*Position on landscape:* Alluvial plains, fan terraces, basalt plains, stream terraces

*Parent material:* Wind-modified alluvium derived from various kinds of rock

*Slope:* 0 to 40 percent

*Elevation:* 2,400 to 3,600 feet

*Average annual precipitation:* 8 to 10 inches

*Average annual air temperature:* 49 to 52 degrees F

*Frost-free period:* 120 to 140 days

**Taxonomic class:** Coarse-loamy, mixed, mesic Xerollic Camborthids

#### Typical Pedon

- A—0 to 5 inches; brown (10YR 5/3) fine sandy loam, dark grayish brown (10YR 4/2) moist; weak thin platy structure; soft, very friable; mildly alkaline; abrupt smooth boundary.
- Bw—5 to 11 inches; brown (10YR 5/3) fine sandy loam, dark grayish brown (10YR 4/2) moist; weak medium subangular blocky structure; slightly hard, friable; mildly alkaline; clear smooth boundary.
- Bk—11 to 20 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 5/3) moist; massive; slightly hard, friable; strongly effervescent; moderately alkaline; clear smooth boundary.
- C—20 to 60 inches; very pale brown (10YR 7/3) fine sandy loam, brown (10YR 4/3) moist; massive; slightly hard, very friable; violently effervescent; strongly alkaline.

#### Typical Pedon Location

*Map unit in which located:* Royal-Shano-Rock outcrop complex, 0 to 20 percent slopes

*Location in survey area:* About 3 miles west of Hammett, about 2,100 feet south and 2,250 feet east of the northwest corner of sec. 33, T. 5 S., R. 8 E.

#### Range in Characteristics

*Depth to secondary lime:* 10 to 20 inches

#### A horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

#### B horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Texture—fine sandy loam or loamy fine sand



*C horizon:*

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Texture—dominantly stratified fine sandy loam and sandy loam, but loamy sand or loamy fine sand is below a depth of 40 inches in some pedons

**Ruckles Series***Depth class:* Shallow*Drainage class:* Well drained*Position on landscape:* Foothills, basalt plains, terraces*Parent material:* Alluvium and residuum derived from volcanic rock*Slope:* 1 to 20 percent*Elevation:* 4,000 to 5,500 feet*Average annual precipitation:* 12 to 14 inches*Average annual air temperature:* 45 to 48 degrees F*Frost-free period:* 90 to 110 days**Taxonomic class:** Clayey-skeletal, montmorillonitic, mesic Lithic Argixerolls**Typical Pedon**

A—0 to 2 inches; brown (10YR 5/3) gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate medium platy structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine interstitial pores; 20 percent pebbles; neutral; abrupt smooth boundary.

Bt1—2 to 6 inches; brown (10YR 4/3) very gravelly clay loam, dark brown (10YR 3/3, rubbed) moist; moderate medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common fine and medium tubular pores; common thin clay films on faces of peds and in pores; 30 percent pebbles and 10 percent cobbles; neutral; clear smooth boundary.

Bt2—6 to 11 inches; dark brown (7.5YR 4/4) extremely gravelly clay, dark brown (7.5YR 4/4, rubbed) moist; strong medium angular blocky structure; very hard, very firm, very sticky and very plastic; common fine and medium tubular pores; many thick clay films on faces of peds and in pores; 60 percent pebbles and 10 percent cobbles; neutral; abrupt wavy boundary.

R—11 inches; latite.

**Typical Pedon Location**

*Map unit in which located:* Immiant-Ruckles-Rock outcrop complex, 4 to 20 percent slopes

*Location in survey area:* About 9 miles northeast of Mountain Home, about 70 feet south and 2,150 feet

east of the northwest corner of sec. 13, T. 2 S., R. 7 E.

**Range in Characteristics***Depth to bedrock:* 10 to 20 inches*Content of rock fragments in particle-size control section:* 45 to 85 percent*A horizon:*

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

**Taxadjunct Features**

The argillic horizon in the Ruckles soils in this survey area has redder hue than is typical for the series. This difference, however, does not significantly affect use and management.

**Schoolhouse Series***Depth class:* Shallow*Drainage class:* Excessively drained*Position on landscape:* Granitic hills, ridges, canyonsides*Parent material:* Alluvium and residuum derived from intermediate intrusive rock*Slope:* 10 to 90 percent*Elevation:* 4,000 to 6,400 feet*Average annual precipitation:* 14 to 22 inches*Average annual air temperature:* 45 to 48 degrees F*Frost-free period:* 70 to 100 days**Taxonomic class:** Sandy-skeletal, mixed, mesic Lithic Xerorthents**Typical Pedon**

A1—0 to 1 inch; grayish brown (10YR 5/2) gravelly loamy sand, dark grayish brown (10YR 4/2) moist; weak very fine granular structure; soft, very friable; common very fine and fine roots; common very fine interstitial pores; about 20 percent pebbles; slightly acid; abrupt wavy boundary.

A2—1 to 5 inches; brown (10YR 5/3) gravelly loamy sand, dark brown (10YR 3/3) moist; weak very fine granular structure; soft, very friable; common very fine and fine roots; common very fine interstitial pores; about 25 percent pebbles; slightly acid; abrupt irregular boundary.

C—5 to 17 inches; pinkish white (7.5YR 8/2) extremely gravelly loamy sand, pinkish gray (7.5YR 6/2) moist; single grain; loose; about 90 percent pebbles; slightly acid; abrupt irregular boundary.

R—17 inches; unweathered quartz-diorite.

### Typical Pedon Location

*Map unit in which located:* Rainey-Schoolhouse-Oland association, 30 to 70 percent slopes

*Location in survey area:* About 3 miles south of Featherville, about 1,900 feet south and 1,550 feet west of the northeast corner of sec. 28, T. 3 N., R. 10 E.

### Range in Characteristics

*Depth to bedrock:* 12 to 20 inches

*Texture of C horizon:* Very gravelly loamy sand or extremely gravelly loamy sand

*Other characteristics:* Cr horizon in some pedons

## Scism Series

*Depth class:* Moderately deep (to a duripan)

*Drainage class:* Well drained

*Position on landscape:* Alluvial plains, basalt plains

*Parent material:* Loess and silty alluvium derived from various kinds of rock

*Slope:* 0 to 4 percent

*Elevation:* 2,900 to 4,000 feet

*Average annual precipitation:* 8 to 10 inches

*Average annual air temperature:* 49 to 51 degrees F

*Frost-free period:* 120 to 130 days

**Taxonomic class:** Coarse-silty, mixed, mesic Haploxerollic Durorthids

### Typical Pedon

A—0 to 3 inches; light grayish brown (10YR 6/2) silt loam, brown (10YR 4/3) moist; weak medium granular structure; soft, very friable, slightly sticky and slightly plastic; common fine roots; strongly effervescent; moderately alkaline; abrupt smooth boundary.

Bk1—3 to 12 inches; light gray (10YR 7/2) silt loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common fine roots; violently effervescent; moderately alkaline; clear smooth boundary.

Bk2—12 to 20 inches; light gray (10YR 7/2) silt loam, brown (10YR 5/3) moist; massive; slightly hard, firm, slightly sticky and slightly plastic; common fine roots; violently effervescent; moderately alkaline; clear smooth boundary.

Bkq—20 to 25 inches; light gray (10YR 7/2) very fine sandy loam, brown (10YR 5/3) moist; massive; slightly hard, firm, slightly sticky and slightly plastic; common fine roots; 15 percent nodules; violently

effervescent; strongly alkaline; abrupt wavy boundary.

Bkqm—25 to 29 inches; brown (10YR 5/3), weakly cemented duripan, dark brown (10YR 4/3) moist; very hard, very firm; root mat at top; violently effervescent; strongly alkaline; abrupt wavy boundary.

2C1—29 to 34 inches; pale brown (10YR 6/3) sandy loam, dark brown (10YR 4/3) moist; massive; slightly hard, friable, slightly sticky; violently effervescent; strongly alkaline; abrupt wavy boundary.

3C2—34 to 60 inches; very pale brown (10YR 8/3) loam, pale brown (10YR 6/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; violently effervescent; strongly alkaline.

### Typical Pedon Location

*Map unit in which located:* Scism silt loam, 0 to 4 percent slopes

*Location in survey area:* About 10 miles southwest of Mountain Home, about 760 feet north and 420 feet west of the southeast corner of sec. 7, T. 5 S., R. 6 E.

### Range in Characteristics

*Depth to duripan:* 20 to 40 inches

*Other characteristics:* Indurated duripan below a depth of 40 inches in some pedons

*Particle-size control section:*

Texture—silt loam or very fine sandy loam

Content of clay—12 to 18 percent

*A horizon:*

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

*Bk horizon:*

Value—6 to 8 dry, 4 to 6 moist

Chroma—2 to 4 dry or moist

Texture—silt loam or very fine sandy loam

*2C and 3C horizons:*

Texture—gravelly sandy loam to silt loam that is stratified in some pedons

## Scoon Series

*Depth class:* Shallow (to a duripan)

*Drainage class:* Well drained

*Position on landscape:* Fan terraces

*Parent material:* Mixed alluvium

*Slope:* 0 to 4 percent

*Elevation:* 2,600 to 3,800 feet

*Average annual precipitation:* 8 to 10 inches

*Average annual air temperature:* 49 to 52 degrees F

*Frost-free period:* 120 to 140 days

**Taxonomic class:** Loamy, mixed, mesic, shallow  
Xerollic Durorthids

#### Typical Pedon

A—0 to 3 inches; pale brown (10YR 6/3) very fine sandy loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; soft, friable; many fine roots; neutral; clear smooth boundary.

Bw—3 to 6 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many fine roots; mildly alkaline; gradual smooth boundary.

Bkq—6 to 15 inches; pale brown (10YR 6/3) loam, brown (10YR 5/3) moist; massive; slightly hard, friable; very hard duripan fragments; many fine roots; strongly effervescent; mildly alkaline; abrupt smooth boundary.

Bkqm—15 to 29 inches; pale brown (10YR 6/3), continuous, indurated duripan; extremely hard, continuous silica cap about 2 millimeters thick; very hard soil material between duripan layers; few fine roots; strongly effervescent; mildly alkaline; clear smooth boundary.

2Bkq1—29 to 42 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; massive; hard, friable; few fine roots; 20 percent durinodes; strongly effervescent; mildly alkaline; clear smooth boundary.

3Bkq2—42 to 68 inches; light yellowish brown (10YR 6/4) gravelly loamy fine sand, dark yellowish brown (10YR 4/4) moist; massive; slightly hard; friable; 10 percent durinodes; strongly effervescent; mildly alkaline.

#### Typical Pedon Location

*Map unit in which located:* Scoon very fine sandy loam, 0 to 4 percent slopes

*Location in survey area:* About 17 miles southeast of Bruneau, about 1,300 feet south and 2,180 feet east of the northwest corner of sec. 17, T. 9 S., R. 7 E.

#### Range in Characteristics

*Depth to duripan:* 10 to 20 inches

*Bw and Bkq horizons:*

Value—6 or 7 dry, 4 or 5 moist

Texture—loam, silt loam, or very fine sandy loam

Content of pebbles—0 to 15 percent

*2Bkq and 3Bkq horizons:*

Content of pebbles—0 to 25 percent

### Sebree Series

*Depth class:* Moderately deep (to a duripan)

*Drainage class:* Well drained

*Position on landscape:* Alluvial plains, basalt plains

*Parent material:* Loess and alluvium derived from various kinds of rock

*Slope:* 0 to 4 percent

*Elevation:* 3,800 to 4,400 feet

*Average annual precipitation:* 8 to 10 inches

*Average annual air temperature:* 49 to 52 degrees F

*Frost-free period:* 110 to 130 days

**Taxonomic class:** Fine-silty, mixed, mesic Xerollic  
Nadurargids

#### Typical Pedon (fig. 13)

E—0 to 2 inches; very pale brown (10YR 7/3) very fine sandy loam, dark brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, slightly plastic; few fine roots; many fine and medium vesicular pores; layer of silt  $\frac{1}{10}$  inch thick at top; neutral; abrupt smooth boundary.

Btn1—2 to 4 inches; brown (10YR 5/3) silty clay, dark brown (10YR 4/3) moist; strong coarse angular blocky structure parting to strong fine and very fine subangular blocky; very hard, very sticky and very plastic; many medium, fine, and very fine roots; common thin silt coatings on faces of peds; mildly alkaline; clear smooth boundary.

Btn2—4 to 10 inches; yellowish brown (10YR 5/4) silty clay loam, yellowish brown (10YR 4/4) moist; strong medium subangular blocky structure parting to strong thin and very thin platy; hard, very sticky and very plastic; many medium, fine, and very fine roots; many moderately thick clay films on faces of peds; mildly alkaline; gradual smooth boundary.

Bkq—10 to 21 inches; light gray (10YR 7/2) silt loam, dark yellowish brown (10YR 4/6) moist; massive; very hard, plastic; common medium, fine, and very fine roots; strongly effervescent; moderately alkaline; abrupt smooth boundary.

Bkqm1—21 to 32 inches; light gray (10YR 7/2), indurated duripan, dark yellowish brown (10YR 4/6) moist; massive; very hard; few fine roots in cracks; root mat at top; strongly effervescent; moderately alkaline; clear smooth boundary.

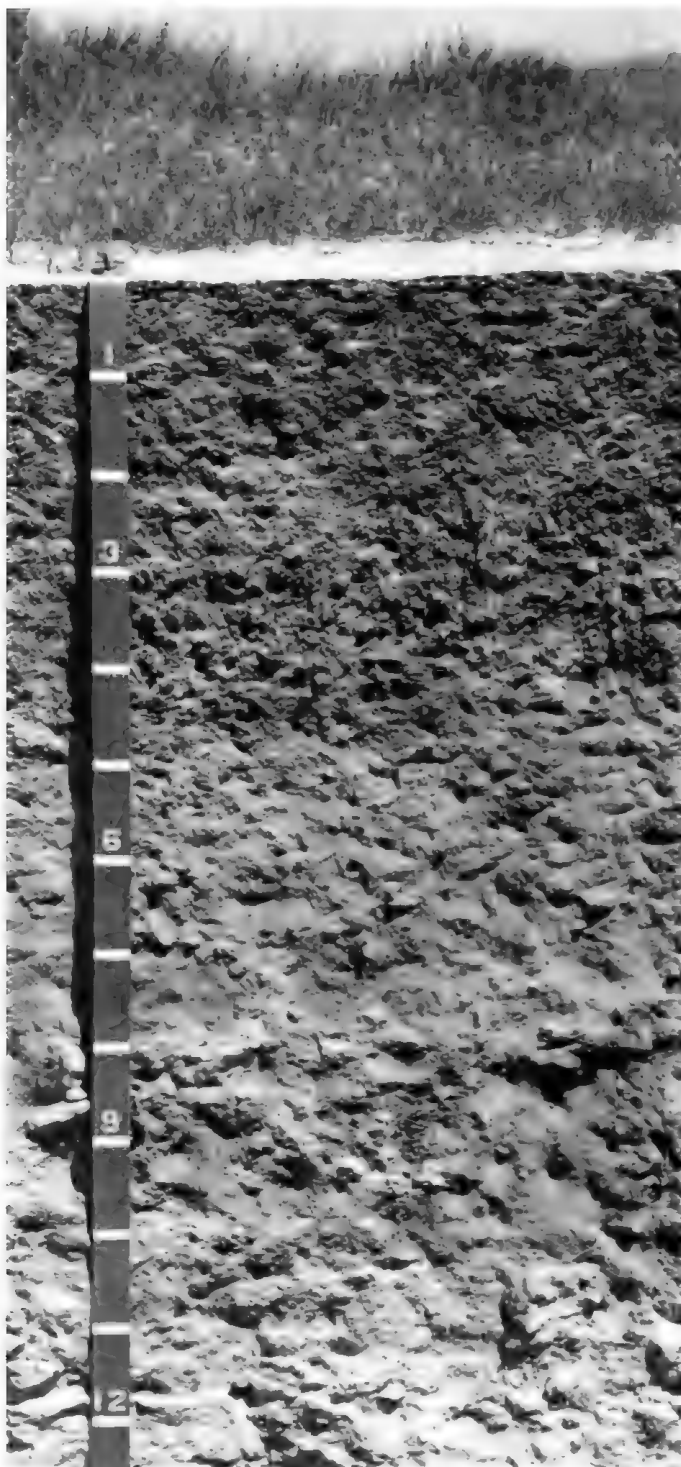


Figure 13.—Profile of Sebree very fine sandy loam in an area of Purdam-Sebree-Owsel complex, 0 to 8 percent slopes (numerals on tape indicate decimeters). A silty clay layer that has a high sodium content is just below the surface, and a hardpan is at a depth of about 32 inches (8 decimeters).

Bkqm2—32 to 56 inches; light yellowish brown (10YR 6/4) duripan, dark yellowish brown (10YR 4/4) moist; massive; hard; strongly effervescent; moderately alkaline.

#### Typical Pedon Location

*Map unit in which located:* Purdam-Sebree-Owsel complex, 0 to 8 percent slopes

*Location in survey area:* About 24 miles south of Glenns Ferry, about 30 feet north and 2,200 feet east of the southwest corner of sec. 25, T. 9 S., R. 10 E.

#### Range in Characteristics

*Depth to duripan:* 20 to 30 inches

*Content of rock fragments in particle-size control section:* 0 to 10 percent

#### A horizon:

Value—5 to 7 dry, 3 to 5 moist

Chroma—2 or 3 dry or moist

#### Bt horizon:

Value—4 to 6 dry, 3 to 5 moist

Chroma—3 or 4 dry or moist

Texture—silty clay loam or silty clay

### Shano Series

*Depth class:* Very deep

*Drainage class:* Well drained

*Position on landscape:* Alluvial plains, fan terraces, basalt plains, lacustrine terraces

*Parent material:* Loess and alluvium derived from various kinds of rock

*Slope:* 0 to 12 percent

*Elevation:* 2,500 to 4,200 feet

*Average annual precipitation:* 8 to 10 inches

*Average annual air temperature:* 49 to 52 degrees F

*Frost-free period:* 110 to 140 days

**Taxonomic class:** Coarse-silty, mixed, mesic Xerollic Camborthids

#### Typical Pedon

A—0 to 2 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; strong thin platy structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine, fine, and medium roots; moderately alkaline; abrupt smooth boundary.

Bw1—2 to 5 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; moderate fine granular structure; hard, friable, slightly sticky and slightly plastic; many very fine, fine, and medium roots; moderately alkaline; abrupt smooth boundary.

Bw2—5 to 15 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; strongly alkaline; clear smooth boundary.

Bk1—15 to 26 inches; white (10YR 8/2) silt loam, pale brown (10YR 6/3) moist; massive; hard, firm; few fine roots; 15 percent durinodes; strongly effervescent; strongly alkaline; gradual smooth boundary.

Bk2—26 to 42 inches; white (10YR 8/2) very fine sandy loam, pale brown (10YR 6/3) moist; massive; hard, firm; few fine roots; 10 percent durinodes; strongly effervescent; moderately alkaline; clear smooth boundary.

C—42 to 60 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; massive; hard, friable; few fine roots; strongly effervescent; moderately alkaline.

#### Typical Pedon Location

*Map unit in which located:* Shano-Owsel complex, 0 to 12 percent slopes

*Location in survey area:* About 19 miles southeast of Bruneau, about 300 feet south and 200 feet east of the northwest corner of sec. 21, T. 9 S., R. 7 E.

#### Range in Characteristics

*Content of durinodes in particle-size control section:* 0 to 20 percent

##### A horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

##### Bw horizon:

Value—5 or 6 dry, 3 or 4 moist

Texture—silt loam or very fine sandy loam

##### Bk horizon:

Value—6 to 8 dry, 4 to 6 moist

Chroma—2 or 3 dry or moist

Texture—silt loam or very fine sandy loam

##### C horizon:

Texture—loamy fine sand or fine sandy loam

Content of pebbles—0 to 15 percent

*Position on landscape:* Fan terraces

*Parent material:* Alluvium derived from volcanic rock

*Slope:* 0 to 8 percent

*Elevation:* 2,700 to 3,800 feet

*Average annual precipitation:* 6 to 8 inches

*Average annual air temperature:* 49 to 52 degrees F

*Frost-free period:* 120 to 140 days

**Taxonomic class:** Loamy, mixed, mesic, shallow Typic Durargids

#### Typical Pedon

A1—0 to 1 inch; pale brown (10YR 6/3) sandy loam, dark brown (10YR 4/3) moist; weak medium platy structure; slightly hard, very friable; common very fine and fine roots; common very fine and fine vesicular pores; 10 percent pebbles; surface is partially covered with varnished desert pavement; moderately alkaline; abrupt smooth boundary.

A2—1 to 3 inches; pale brown (10YR 6/3) clay loam, dark brown (10YR 4/3) moist; moderate medium and thick platy structure; hard, firm, sticky and plastic; common very fine and fine roots; many very fine and fine vesicular pores; 10 percent pebbles; moderately alkaline; abrupt smooth boundary.

Bt—3 to 12 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; hard, firm, sticky and plastic; common very fine and fine roots; common fine and medium tubular pores; common thin clay films on faces of peds; 20 percent pebbles; moderately alkaline; abrupt wavy boundary.

Bkqm—12 to 15 inches; very pale brown (10YR 7/3), fractured, indurated duripan, pale brown (10YR 6/3) moist; extremely hard, extremely firm; continuous silica-cemented laminae at top; fractures are about 10 inches apart; 20 percent cemented pebbles; violently effervescent; strongly alkaline; abrupt wavy boundary.

2Bkq1—15 to 34 inches; light gray (10YR 7/2), intermittent, strongly cemented duripan with variegated extremely gravelly coarse sand between pan layers; few very fine and fine roots; 55 percent pebbles and 10 percent cobbles; violently effervescent; strongly alkaline; diffuse wavy boundary.

2Bkq2—34 to 60 inches; variegated extremely gravelly coarse sand; single grain; loose; few very fine roots; 50 percent pebbles and 15 percent cobbles; few pendants of lime and silica on underside of pebbles; slightly effervescent; moderately alkaline.

### Shoofly Series

*Depth class:* Shallow (to a duripan)

*Drainage class:* Well drained

**Typical Pedon Location**

*Map unit in which located:* Shoofly loam, 0 to 4 percent slopes

*Location in survey area:* About 14 miles south of Grand View, about 1,300 feet south and 1,150 feet west of the northeast corner of sec. 26, T. 7 S., R. 2 E.

**Range in Characteristics**

*Depth to duripan:* 9 to 14 inches

*Content of clay in particle-size control section:* 25 to 35 percent

*A horizon:*

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

*Bt horizon:*

Hue—7.5YR or 10YR

Value—6 or 7 dry, 4 or 5 moist

Chroma—3 or 4 dry or moist

Texture—silty clay loam, clay loam, clay, or gravelly clay loam

Content of pebbles—5 to 20 percent

Content of clay—averages 30 to 35 percent

*2Bk horizon:*

Texture—loamy sand to coarse sand

Content of pebbles—40 to 70 percent

**Sidlake Series**

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Position on landscape:* Basalt plains

*Parent material:* Loess and material weathered from silicic volcanic rock

*Slope:* 1 to 30 percent

*Elevation:* 3,200 to 4,400 feet

*Average annual precipitation:* 8 to 10 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free period:* 110 to 125 days

**Taxonomic class:** Fine-loamy, mixed, mesic Xerollic Haplargids

**Typical Pedon**

A—0 to 4 inches; pale brown (10YR 6/3) loam, dark brown (10YR 3/3) moist; weak medium platy structure; soft, very friable; neutral; clear smooth boundary.

Bt1—4 to 8 inches; light yellowish brown (10YR 6/4) loam, dark yellowish brown (10YR 4/4) moist; weak very thick platy structure; hard, friable, sticky and plastic; many moderately thick clay films bridging

sand grains; neutral; clear smooth boundary.

Bt2—8 to 16 inches; light yellowish brown (10YR 6/4) clay loam, dark brown (10YR 4/3) moist; weak medium prismatic structure; hard, friable, sticky and plastic; many moderately thick clay films on faces of ped; mildly alkaline; abrupt smooth boundary.

Bk1—16 to 19 inches; very pale brown (10YR 7/3) gravelly loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; 30 percent fine pebbles; slightly effervescent; mildly alkaline; gradual smooth boundary.

Bk2—19 to 26 inches; very pale brown (10YR 7/4) very gravelly sandy clay loam, light yellowish brown (10YR 6/4) moist; massive; hard, friable, slightly sticky and slightly plastic; 45 percent fine pebbles; strongly effervescent; mildly alkaline; gradual irregular boundary.

R—26 inches; vitrophyre bedrock that is highly fractured and slightly weathered in the upper 3 inches; discontinuous coatings of lime at top.

**Typical Pedon Location**

*Map unit in which located:* Sidlake-Buncan complex, 1 to 8 percent slopes

*Location in survey area:* About 30 miles southeast of Glenns Ferry, about 300 feet north and 2,430 feet west of the southeast corner of sec. 16, T. 10 S., R. 12 E.

**Range in Characteristics**

*Depth to bedrock:* 20 to 40 inches

*Content of clay in particle-size control section:* 20 to 32 percent

*A horizon:*

Value—4 or 5 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

*Bt horizon:*

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—clay loam, loam, or sandy clay loam

*Bk horizon:*

Value—6 or 7 dry, 4 to 6 moist

Chroma—3 or 4 dry or moist

Texture—gravelly loam or very gravelly sandy clay loam

Content of pebbles—10 to 45 percent

**Simonton Series**

*Depth class:* Very deep

*Drainage class:* Well drained

*Position on landscape:* Foothills, basalt plains, terraces

*Parent material:* Alluvium derived from igneous rock

*Slope:* 0 to 30 percent

*Elevation:* 4,500 to 6,200 feet

*Average annual precipitation:* 15 to 20 inches

*Average annual air temperature:* 40 to 45 degrees F

*Frost-free period:* 60 to 80 days

**Taxonomic class:** Fine-loamy, mixed, frigid Ultic  
Argixerolls

#### Typical Pedon

A—0 to 4 inches; brown (10YR 5/3) loam, very dark grayish brown (10YR 3/2) moist; weak very fine granular structure; soft, friable, slightly sticky and slightly plastic; common very fine roots; few very fine and fine interstitial pores; moderately acid; clear wavy boundary.

AB—4 to 10 inches; brown (10YR 5/3) clay loam, dark brown (10YR 3/3) moist; moderate medium and fine subangular blocky structure; slightly hard, firm, slightly sticky and plastic; few very fine roots; few very fine and fine tubular and interstitial pores; few thin clay films bridging sand grains and on faces of peds; moderately acid; clear wavy boundary.

Bt1—10 to 19 inches; light yellowish brown (10YR 6/4) clay loam, brown (10YR 4/3) moist; moderate medium and fine subangular blocky structure; hard, firm, sticky and plastic; few very fine roots; few very fine interstitial pores; common thin clay films bridging grains on faces of peds; moderately acid; clear wavy boundary.

Bt2—19 to 30 inches; light yellowish brown (10YR 6/4) clay loam, yellowish brown (10YR 5/6) moist; moderate medium and coarse subangular blocky structure; slightly hard, firm, sticky and plastic; few very fine interstitial pores; common moderately thick clay films bridging grains on faces of peds; moderately acid; clear wavy boundary.

Bt3—30 to 36 inches; very pale brown (10YR 7/4) clay loam, yellowish brown (10YR 5/6) moist; weak medium and coarse subangular blocky structure; slightly hard, firm, sticky and plastic; common thin clay films bridging grains on faces of peds; few very fine interstitial pores; moderately acid; clear wavy boundary.

BC—36 to 42 inches; very pale brown (10YR 8/4) sandy clay loam, brownish yellow (10YR 6/6) moist; weak medium and coarse subangular blocky structure; slightly hard, firm, sticky and slightly plastic; moderately acid; clear smooth boundary.

C—42 to 60 inches; very pale brown (10YR 8/3) sandy

loam, pale brown (10YR 6/3) moist; massive; slightly hard, friable; neutral.

#### Typical Pedon Location

*Map unit in which located:* Simonton-Elkcreek complex, 10 to 50 percent slopes

*Location in survey area:* About 25 miles northeast of Mountain Home, about 1,950 feet north and 1,410 feet east of the southwest corner of sec. 14, T. 1 N., R. 9 E.

#### Range in Characteristics

*Content of rock fragments:* 5 to 10 percent

*Thickness of mollic epipedon:* 10 to 15 inches

*A horizon:*

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

*B horizon:*

Hue—5YR to 10YR

Value—4 to 7 dry, 3 to 5 moist

Chroma—3 to 6 dry or moist

Texture—loam or clay loam

*BC and C horizons:*

Texture—sandy loam, sandy clay loam, loam, or loamy coarse sand

### Stavelly Series

*Depth class:* Very deep

*Drainage class:* Well drained

*Position on landscape:* Mountainsides

*Parent material:* Alluvium and colluvium derived from intermediate intrusive rock

*Slope:* 10 to 60 percent

*Elevation:* 4,800 to 6,200 feet

*Average annual precipitation:* 23 to 30 inches

*Average annual air temperature:* 40 to 45 degrees F

*Frost-free season:* 40 to 60 days

**Taxonomic class:** Coarse-loamy, mixed, frigid Typic  
Xerochrepts

#### Typical Pedon

O—1 inch to 0; partially decomposed fir needles, twigs, and leaves.

A—0 to 4 inches; dark grayish brown (10YR 4/2) coarse sandy loam, very dark brown (10YR 2/2) moist; weak fine granular structure; soft, very friable; common fine roots; 5 percent fine pebbles; neutral; abrupt smooth boundary.

AB—4 to 10 inches; pale brown (10YR 6/3) coarse sandy loam, dark brown (10YR 3/3) moist; weak

fine subangular blocky structure; slightly hard, very friable; common fine roots; 5 percent fine pebbles; neutral; clear smooth boundary.

Bw1—10 to 17 inches; pale brown (10YR 6/3) coarse sandy loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable; common fine, medium, and coarse roots; 10 percent fine pebbles; neutral; clear smooth boundary.

Bw2—17 to 28 inches; very pale brown (10YR 7/3) gravelly coarse sandy loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable; few fine roots; 20 percent fine pebbles; neutral; clear smooth boundary.

BC—28 to 34 inches; very pale brown (10YR 7/3) gravelly loamy coarse sand, brown (10YR 5/3) moist; massive; hard, friable; few fine roots; 25 percent fine pebbles; neutral; gradual wavy boundary.

C1—34 to 42 inches; variegated very gravelly coarse sand; massive; hard, friable; few fine roots; 35 percent pebbles; slightly acid; gradual wavy boundary.

C2—42 to 60 inches; variegated very gravelly coarse sand; massive; hard, friable; 25 percent granodiorite cobbles and stones that are slightly hard, highly weathered, and crush to gravelly coarse sand; matrix is 40 percent pebbles; few fine roots; slightly acid.

#### Typical Pedon Location

*Map unit in which located:* Stavely-Coski-Switchback complex, 10 to 60 percent slopes

*Location in survey area:* About 3 miles southeast of Pine and 2 miles north of Lester Creek Guard Station, about 1,850 feet north and 950 feet east of the southwest corner of sec. 26, T. 2 N., R. 9 E.

#### Range in Characteristics

*Content of pebbles and cobbles in particle-size control section:* 5 to 20 percent

#### A horizon:

Value—4 to 6 dry, 2 to 5 moist

Chroma—2 to 4 dry or moist

Content of clay—10 to 15 percent

#### B horizon:

Value—6 or 7 dry, 3 to 5 moist

Chroma—2 to 4 dry or moist

Texture—sandy loam, gravelly coarse sandy loam, or coarse sandy loam

Content of pebbles and cobbles—0 to 20 percent

Content of clay—10 to 15 percent

#### C horizon:

Texture—gravelly coarse sandy loam, gravelly loamy coarse sand, or very gravelly coarse sand

Content of pebbles and cobbles—15 to 50 percent

### Switchback Series

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Position on landscape:* Mountainsides

*Parent material:* Alluvium and colluvium derived from intermediate intrusive rock

*Slope:* 10 to 70 percent

*Elevation:* 4,500 to 6,500 feet

*Average annual precipitation:* 23 to 30 inches

*Average annual air temperature:* 40 to 45 degrees F

*Frost-free season:* 40 to 60 days

**Taxonomic class:** Coarse loamy, mixed, frigid Typic Xerochrepts

#### Typical Pedon

A—0 to 3 inches; light brownish gray (10YR 6/2) sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable; few fine and coarse roots; few fine tubular and interstitial pores; 5 percent pebbles; neutral; clear wavy boundary.

Bw1—3 to 11 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable; few medium and coarse roots; few fine tubular and interstitial pores; 10 percent pebbles; neutral; clear wavy boundary.

Bw2—11 to 24 inches; very pale brown (10YR 7/3) gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; weak coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few medium roots; few fine tubular and interstitial pores; very few thin clay films on faces of peds and bridging sand grains; 15 percent pebbles; neutral; clear wavy boundary.

C—24 to 37 inches; very pale brown (10YR 7/3) gravelly sandy loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, friable; 20 percent pebbles; neutral; clear wavy boundary.

Cr—37 inches; weathered quartz-diorite.

#### Typical Pedon Location

*Map unit in which located:* Switchback-Grousecreek complex, 20 to 60 percent slopes



*Location in survey area:* About 6 miles east of Prairie, about 1,900 feet south and 900 feet east of the northwest corner of sec. 13, T. 2 N., R. 8 E.

### Range in Characteristics

*Depth to bedrock:* 20 to 40 inches

#### *A horizon:*

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

#### *Bw horizon:*

Value—6 or 7 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Content of pebbles—15 to 30 percent

#### *C horizon:*

Value—6 or 7 dry

Chroma—3 or 4 dry or moist

Texture—gravelly sandy loam or gravelly coarse sandy loam

Content of pebbles—15 to 45 percent

## Teewinot Series

*Depth class:* Shallow

*Drainage class:* Well drained

*Position on landscape:* Mountainsides, ridges

*Parent material:* Alluvium and colluvium derived from gneiss and intermediate intrusive rock

*Slope:* 10 to 50 percent

*Elevation:* 6,500 to 8,200 feet

*Average annual precipitation:* 28 to 35 inches

*Average annual air temperature:* 35 to 38 degrees F

*Frost-free season:* 35 to 55 days

**Taxonomic class:** Loamy-skeletal, mixed Lithic Cryumbrepts

### Typical Pedon

A1—0 to 7 inches; dark grayish brown (10YR 4/2) very cobbly sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; loose, very friable; many very fine and fine roots; common tubular and interstitial pores; 15 percent fine pebbles and 20 percent cobbles and stones; moderately acid; clear smooth boundary.

A2—7 to 14 inches; brown (10YR 4/3) very cobbly sandy loam, dark brown (10YR 3/3) moist; moderate medium granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; common tubular and interstitial pores; 20 percent pebbles and 25 percent cobbles

and stones; moderately acid; abrupt irregular boundary.

R—14 inches; gneiss.

### Typical Pedon Location

*Map unit in which located:* Moran-Teewinot-Coski complex, 10 to 50 percent slopes

*Location in survey area:* About 7 miles southeast of Prairie, about 1,250 feet west and 1,050 feet north of the southeast corner of sec. 10, T. 1 N., R. 8 E.

### Range in Characteristics

*Depth to bedrock:* 10 to 20 inches

#### *Particle-size control section:*

Content of rock fragments—35 to 60 percent

Content of clay—10 to 15 percent

#### *A horizon:*

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Texture—very gravelly sandy loam or very cobbly sandy loam

Content of pebbles and cobbles—35 to 60 percent

Content of stones—10 to 20 percent

## Tenmile Series

*Depth class:* Very deep

*Drainage class:* Well drained

*Position on landscape:* Dissected fan terraces, valley sides

*Parent material:* Alluvium derived from silicic volcanic rock

*Slope:* 3 to 20 percent

*Elevation:* 3,300 to 4,200 feet

*Average annual precipitation:* 10 to 13 inches

*Average annual air temperature:* 48 to 50 degrees F

*Frost-free period:* 100 to 130 days

**Taxonomic class:** Clayey-skeletal, montmorillonitic, mesic Xerollic Haplargids

### Typical Pedon

A1—0 to 3 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; moderate fine and medium granular structure; soft, very friable; many very fine roots, common fine roots, and few medium roots; many very fine interstitial pores; 20 percent pebbles; mildly alkaline; abrupt smooth boundary.

A2—3 to 10 inches; pale brown (10YR 6/3) gravelly loam, dark brown (10YR 3/3) moist; moderate fine and medium granular structure; soft, very friable,

slightly sticky and slightly plastic; many very fine roots, common fine roots, and few medium roots; many very fine interstitial pores and common fine interstitial and tubular pores; 20 percent pebbles and 5 percent cobbles; mildly alkaline; gradual wavy boundary.

BA—10 to 13 inches; pale brown (10YR 6/3) very gravelly clay loam, brown (10YR 5/3) moist; weak fine subangular blocky structure parting to moderate fine and medium granular; hard, friable, sticky and plastic; many very fine and few fine roots; many very fine and common fine interstitial and tubular pores; 30 percent pebbles and 5 percent cobbles; mildly alkaline; clear wavy boundary.

Bt1—13 to 20 inches; pale brown (10YR 6/3) very gravelly sandy clay, yellowish brown (10YR 5/4) moist; moderate very fine and fine subangular blocky structure; slightly hard, friable, sticky and plastic; many very fine roots; common very fine interstitial pores; common thin clay films on faces of peds and lining pores; 50 percent pebbles and 10 percent cobbles; mildly alkaline; clear wavy boundary.

Bt2—20 to 32 inches; brown (7.5YR 5/4 dry or moist) extremely gravelly clay; strong very fine and fine subangular blocky structure; slightly hard, friable, very sticky and very plastic; many very fine roots; common very fine interstitial pores; many moderately thick clay films on faces of peds and lining pores; 65 percent pebbles and 10 percent cobbles; mildly alkaline; gradual irregular boundary.

Bt3—32 to 46 inches; reddish yellow (7.5YR 6/6) extremely gravelly clay, strong brown (7.5YR 5/6) moist; strong very fine and fine subangular blocky structure; slightly hard, friable, very sticky and very plastic; common very fine roots; common very fine interstitial pores; many moderately thick clay films on faces of peds and lining pores; 75 percent pebbles and 10 percent cobbles; mildly alkaline; gradual wavy boundary.

2C—46 to 60 inches; variegated extremely gravelly loamy coarse sand; massive; slightly hard, friable; 50 percent pebbles and 15 percent cobbles; mildly alkaline.

#### Typical Pedon Location

*Map unit in which located:* Trosi-Chilcott-Tenmile gravelly loams, 2 to 20 percent slopes

*Location in survey area:* About 10 miles northwest of King Hill, about 2,480 feet south and 500 feet east of the northwest corner of sec. 1, T. 4 S., R. 9 E.

#### Range in Characteristics

*Depth to C horizon:* 27 to 46 inches

*A horizon:*

Value—5 or 6 dry, 2 to 4 moist

Chroma—2 or 3 dry or moist

*Bt horizon:*

Hue—7.5YR or 10YR

Value—4 to 6 dry, 4 or 5 moist

Chroma—3 to 6 dry or moist

Content of pebbles and cobbles—35 to 65 percent

Texture—very gravelly clay loam, very gravelly sandy clay, or extremely gravelly clay

Content of clay—averages 35 to 50 percent

*2C horizon:*

Content of pebbles and cobbles—60 to 85 percent

#### Timmerman Series

*Depth class:* Very deep

*Drainage class:* Somewhat excessively drained

*Position on landscape:* Fan terraces, stream terraces

*Parent material:* Mixed alluvium

*Slope:* 0 to 20 percent

*Elevation:* 2,500 to 2,900 feet

*Average annual precipitation:* 8 to 9 inches

*Average annual air temperature:* 51 to 52 degrees F

*Frost-free period:* 130 to 140 days

**Taxonomic class:** Sandy, mixed, mesic Xerollic Camborthids

#### Typical Pedon

A1—0 to 2 inches; brown (10YR 5/3) loamy sand, very dark grayish brown (10YR 3/2) moist; moderate thin platy structure; soft, very friable; common very fine roots; few very fine tubular pores; mildly alkaline; abrupt smooth boundary.

A2—2 to 6 inches; very pale brown (10YR 7/3) sandy loam, brown (10YR 4/3) moist; weak medium platy structure; soft, very friable; common very fine roots; few very fine tubular pores; mildly alkaline; clear smooth boundary.

Bw—6 to 17 inches; yellowish brown (10YR 5/4) sandy loam, brown (10YR 4/3) moist; weak coarse subangular blocky structure; soft, very friable; few very fine roots; common fine tubular pores; few thin clay films bridging sand grains; mildly alkaline; gradual smooth boundary.

C1—17 to 31 inches; variegated loamy coarse sand; massive; soft, very friable; few fine roots; few fine

tubular pores; moderately alkaline; clear smooth boundary.

C2—31 to 42 inches; variegated coarse sand; single grain; loose; few very fine roots; slightly effervescent; moderately alkaline; clear smooth boundary.

C3—42 to 54 inches; variegated coarse sand; massive; soft, very friable; strongly effervescent; moderately alkaline; abrupt wavy boundary.

C4—54 to 60 inches; variegated coarse sand; single grain; loose; moderately alkaline.

#### Typical Pedon Location

*Map unit in which located:* Timmerman sandy loam, 0 to 4 percent slopes

*Location in survey area:* About 7 miles east of Glenns Ferry, about 600 feet east and 1,550 feet north of the southwest corner of sec. 32, T. 5 S., R. 11 E.

#### Range in Characteristics

##### A horizon:

Value—5 to 7 dry, 3 or 4 moist

##### Bw horizon:

Value—5 or 6 dry, 4 or 5 moist

Chroma—3 or 4 dry or moist

Texture—sandy loam or coarse sandy loam

##### C horizon:

Texture—coarse sand or loamy coarse sand

Content of pebbles—0 to 15 percent

Other characteristics—loose sand and gravel below a depth of 50 inches in some pedons

#### Taxadjunct Features

The Timmerman soils in this survey area have calcium carbonates at a greater depth in the profile and have lower value and higher chroma than are typical for the series. These differences, however, do not significantly affect use and management.

### Trevino Series

*Depth class:* Shallow

*Drainage class:* Well drained

*Position on landscape:* Basalt plains and ridges

*Parent material:* Loess and alluvium derived from various kinds of rock

*Slope:* 0 to 30 percent

*Elevation:* 2,600 to 3,700 feet

*Average annual precipitation:* 8 to 10 inches

*Average annual air temperature:* 49 to 52 degrees F

*Frost-free period:* 110 to 130 days

**Taxonomic class:** Loamy, mixed, mesic Lithic Xerollic Camborthids

#### Typical Pedon (fig. 14)

A1—0 to 2 inches; pale brown (10YR 6/3) stony loam, dark brown (10YR 3/3) moist; moderate medium platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine vesicular pores; mildly alkaline; abrupt smooth boundary.

A2—2 to 5 inches; pale brown (10YR 6/3) stony loam, brown (10YR 4/3) moist; moderate thin platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine vesicular pores; mildly alkaline; abrupt smooth boundary.

Bw—5 to 12 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; common very fine tubular pores; moderately alkaline; clear smooth boundary.

Bk—12 to 18 inches; very pale brown (10YR 7/3) fine sandy loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, slightly sticky; few very fine roots; few very fine tubular pores; 10 percent basalt pebbles; lime coatings on pebbles; violently effervescent; moderately alkaline; abrupt wavy boundary.

R—18 inches; fractured basalt; lime coatings at top and in fractures; some weak silica cementation.

#### Typical Pedon Location

*Map unit in which located:* Trevino-Garbutt-Weso complex, 2 to 8 percent slopes

*Location in survey area:* About 13 miles west of Mountain Home, about 1,000 feet south and 900 feet west of the northeast corner of sec. 3, T. 4 S., R. 4 E.

#### Range in Characteristics

*Depth to bedrock:* 10 to 20 inches

*Depth to secondary lime:* 8 to 13 inches

##### A horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

##### Bw horizon:

Texture—very fine sandy loam, loam, or silt loam

Content of pebbles—0 to 10 percent

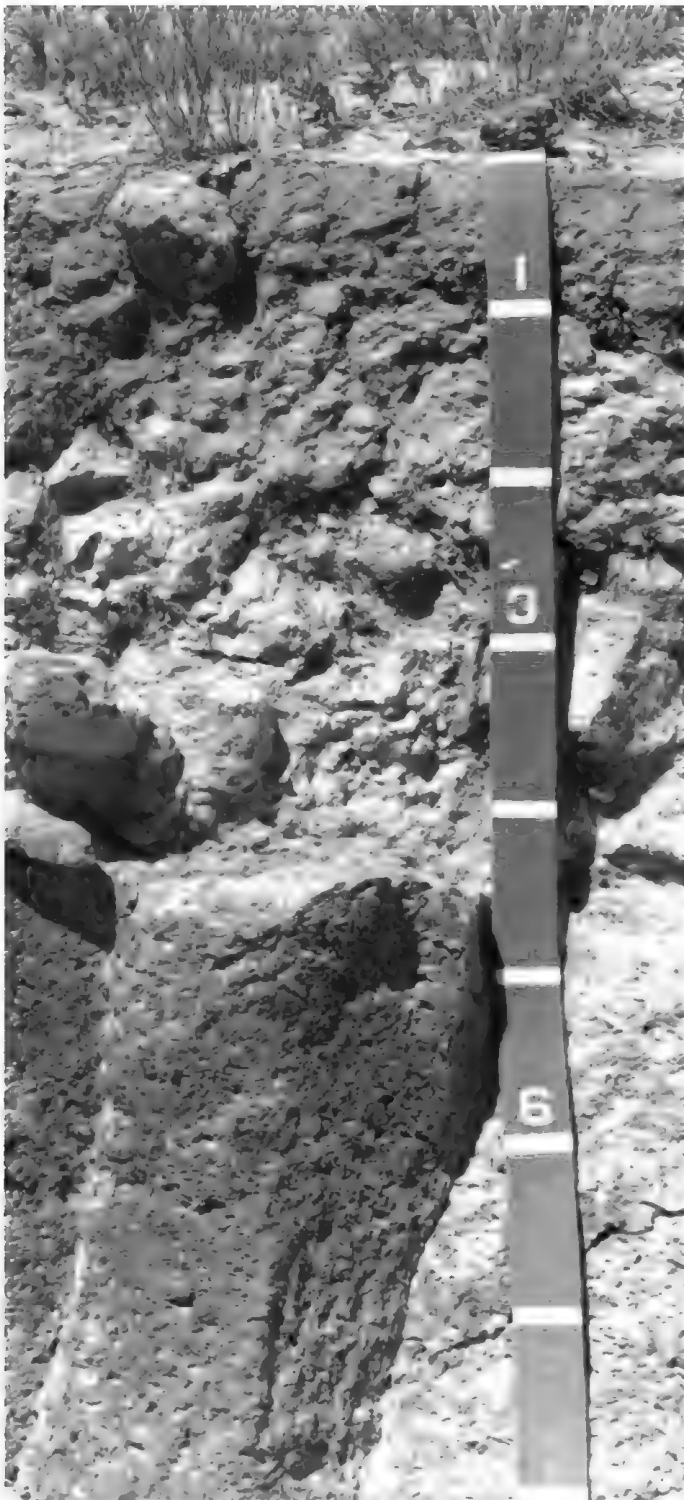


Figure 14.—Profile of Trevino stony loam in an area of Trevino-Garbutt-Weso complex, 2 to 8 percent slopes (numerals on tape indicate decimeters). Bedrock is at a depth of about 18 inches (4.5 decimeters).

**Bk horizon:**

Texture—fine sandy loam, loam, stony loam, or silt loam

Content of pebbles, cobbles, and stones—5 to 20 percent

**Trosi Series**

*Depth class:* Shallow (to a duripan)

*Drainage class:* Well drained

*Position on landscape:* Dissected fan terraces

*Parent material:* Alluvium derived from silicic volcanic rock

*Slope:* 2 to 12 percent

*Elevation:* 3,300 to 4,200 feet

*Average annual precipitation:* 10 to 13 inches

*Average annual air temperature:* 47 to 50 degrees F

*Frost-free period:* 100 to 130 days

**Taxonomic class:** Clayey-skeletal, montmorillonitic, mesic, shallow Xerollic Durargids

**Typical Pedon**

A—0 to 3 inches; very pale brown (10YR 7/3) gravelly loam, dark brown (10YR 3/3) moist; weak very thick platy structure; slightly hard, friable, slightly sticky and slightly plastic; 30 percent pebbles; mildly alkaline; clear smooth boundary.

BA—3 to 6 inches; pale brown (10YR 6/3) very gravelly clay loam, brown (10YR 4/3) moist; moderate thin platy structure; hard, firm, sticky and slightly plastic; 35 percent pebbles and 5 percent cobbles; neutral; clear wavy boundary.

Bt—6 to 16 inches; brown (7.5YR 5/4) very gravelly clay, strong brown (7.5YR 4/6) moist; moderate medium prismatic structure; very hard, very firm, very sticky and very plastic; continuous moderately thick clay films on faces of peds; 30 percent pebbles and 10 percent cobbles; neutral; clear wavy boundary.

Bkqm—16 to 28 inches; very pale brown (10YR 8/4) extremely gravelly duripan, yellowish brown (10YR 5/6) moist; massive; very hard, extremely firm; 55 percent pebbles and 10 percent cobbles; veins of lime that are strongly effervescent; neutral; clear wavy boundary.

Bkq—28 to 38 inches; very pale brown (10YR 8/4) extremely gravelly loamy coarse sand, yellowish brown (10YR 5/6) moist; massive; very hard, very firm; 50 percent pebbles and 15 percent cobbles; strongly effervescent; neutral; clear wavy boundary.

Bk—38 to 60 inches; yellow (10YR 7/6) very gravelly loamy sand, yellowish brown (10YR 5/8) moist; massive; hard, firm; 50 percent pebbles and 10 percent cobbles; slightly effervescent; neutral.

#### Typical Pedon Location

*Map unit in which located:* Trosi-Chilcott-Tenmile gravelly loams, 2 to 20 percent slopes

*Location in survey area:* About 11 miles north of Hammett, about 90 feet north and 2,080 feet west of the southeast corner of sec. 5, T. 4 S., R. 9 E.

#### Range in Characteristics

*Depth to duripan:* 14 to 20 inches

*Content of clay in particle-size control section:* 35 to 50 percent

#### A horizon:

Value—6 or 7 dry

Chroma—2 or 3 dry or moist

#### Bt horizon:

Hue—7.5YR or 10YR

Value—4 to 7 dry, 4 or 5 moist

Chroma—4 to 6 dry or moist

Content of pebbles and cobbles—35 to 45 percent

Texture—very gravelly clay, very gravelly clay loam, or very cobbly silty clay loam

### Troughs Series

*Depth class:* Shallow (to a duripan)

*Drainage class:* Well drained

*Position on landscape:* Alluvial plains, fan terraces

*Parent material:* Alluvium derived from various kinds of rock

*Slope:* 1 to 15 percent

*Elevation:* 3,600 to 4,500 feet

*Average annual precipitation:* 8 to 10 inches

*Average annual air temperature:* 47 to 50 degrees F

*Frost-free period:* 100 to 120 days

**Taxonomic class:** Loamy-skeletal, mixed, mesic, shallow Xerollic Durargids

#### Typical Pedon

A—0 to 4 inches; light brownish gray (10YR 6/2) stony loam, very dark grayish brown (10YR 3/2) moist; moderate medium platy structure parting to moderate medium granular; slightly hard, friable, slightly sticky and slightly plastic; 10 percent pebbles and 10 percent cobbles; many very fine and fine roots; mildly alkaline; clear smooth boundary.

Bw—4 to 11 inches; brown (10YR 5/3) cobbly loam, dark grayish brown (10YR 4/2) moist; moderate medium and fine subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots and few medium roots; 10 percent cobbles and 5 percent pebbles; mildly alkaline; clear smooth boundary.

Bt—11 to 16 inches; pale brown (10YR 6/3) very gravelly clay loam, brown (10YR 5/3) moist; strong medium and coarse subangular blocky structure; hard, friable, sticky and plastic; common very fine, fine, and medium roots; 30 percent pebbles and 10 percent cobbles; strongly effervescent; mildly alkaline; clear wavy boundary.

Bkqm—16 to 21 inches; very pale brown (10YR 7/3), indurated hardpan, pale brown (10YR 6/3) moist; strong thick platy structure; very hard, extremely firm; 50 percent pebbles; violently effervescent; moderately alkaline; clear smooth boundary.

Bk—21 to 36 inches; very pale brown (10YR 8/3) extremely gravelly loam, pale brown (10YR 6/3) moist; massive; loose; 60 percent pebbles and 10 percent cobbles; violently effervescent; moderately alkaline; clear wavy boundary.

R—36 inches; fractured rhyolite.

#### Typical Pedon Location

*Map unit in which located:* Hotcreek-Troughs association, 1 to 15 percent slopes

*Location in survey area:* About 11 miles southwest of Oreana, about 820 feet east and 2,460 feet south of the northwest corner of sec. 16, T. 6 S., R. 1 W.

#### Range in Characteristics

*Depth to bedrock:* 25 to 40 inches

*Depth to duripan:* 15 to 20 inches

#### Particle-size control section:

Content of clay—27 to 35 percent

Content of pebbles and cobbles—35 to 45 percent

#### A horizon:

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

#### Bt horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—3 or 4 dry or moist

Content of pebbles and cobbles—35 to 45 percent

Content of clay—27 to 35 percent

#### Bkq and Bkqm horizons:

Value—7 or 8 dry, 6 or 7 moist

Chroma—3 or 4 dry or moist

Content of pebbles—50 to 65 percent

### Truesdale Series

*Depth class:* Moderately deep (to a duripan)

*Drainage class:* Well drained

*Position on landscape:* Alluvial plains, basalt plains, fan terraces

*Parent material:* Mixed alluvium

*Slope:* 0 to 12 percent

*Elevation:* 2,500 to 4,000 feet

*Average annual precipitation:* 8 to 10 inches

*Average annual air temperature:* 49 to 52 degrees F

*Frost-free period:* 120 to 140 days

**Taxonomic class:** Coarse-loamy, mixed, mesic  
Haploxerollic Durorthids

#### Typical Pedon

- A—0 to 5 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; moderate medium platy structure; slightly hard, friable, nonsticky and slightly plastic; many very fine roots; mildly alkaline; clear smooth boundary.
- Bw—5 to 18 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine roots; moderately alkaline; clear smooth boundary.
- Bk—18 to 27 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; massive; slightly hard, friable, nonsticky and slightly plastic; common very fine roots; violently effervescent; moderately alkaline; clear wavy boundary.
- Bkqm—27 to 60 inches; very pale brown (10YR 7/3) duripan, brown (10YR 5/3) moist; massive; very hard and very firm; pan consists of thick plates stratified with sandy loam and loamy sand; violently effervescent; moderately alkaline.

#### Typical Pedon Location

*Map unit in which located:* Truesdale fine sandy loam, 0 to 4 percent slopes

*Location in survey area:* About 14 miles southwest of Mountain Home, about 50 feet north and 2,600 feet west of the southeast corner of sec. 31, T. 4 S., R. 5 E.

#### Range in Characteristics

*Depth to duripan:* 20 to 40 inches

*Bw horizon:*

Value—5 to 7 dry, 3 to 5 moist

Chroma—2 to 4 dry or moist

Texture—sandy loam or fine sandy loam

Content of clay—7 to 18 percent

*Bk horizon:*

Value—6 to 8 dry, 4 to 6 moist

Chroma—2 or 3 dry or moist

### Typic Torriorthents

*Depth class:* Moderately deep to very deep

*Drainage class:* Well drained to excessively drained

*Position on landscape:* Canyonsides, dissected alluvial terraces, dissected lacustrine terraces

*Parent material:* Alluvial and lacustrine deposits derived from various kinds of rock

*Slope:* 4 to 70 percent

*Elevation:* 2,400 to 3,400 feet

*Average annual precipitation:* 6 to 8 inches

*Average annual air temperature:* 50 to 52 degrees F

*Frost free period:* 130 to 150 days

#### Representative Pedon

- A—0 to 3 inches; light brownish gray (10YR 6/2) fine sandy loam, dark grayish brown (10YR 4/2) moist; moderate thin platy structure; soft, very friable; few very fine and fine roots; slightly effervescent; moderately alkaline; clear smooth boundary.
- AC—3 to 6 inches; light brownish gray (10YR 6/2) fine sandy loam, dark grayish brown (10YR 4/2) moist; weak medium subangular blocky structure; slightly hard, friable; common very fine, fine, and medium roots; slightly effervescent; moderately alkaline; abrupt wavy boundary.
- C1—6 to 10 inches; light gray (10YR 7/2) very gravelly sandy loam, grayish brown (10YR 5/2) moist; strong medium platy structure; hard, firm, slightly sticky; few very fine and fine roots; 40 percent pebbles; weakly cemented in some parts; slightly effervescent; moderately alkaline; abrupt smooth boundary.
- 2C2—10 to 60 inches; light gray (10YR 7/2) extremely gravelly loamy sand, grayish brown (10YR 5/2) moist; single grain; loose; common very fine, fine, and medium roots; 80 percent pebbles; strongly effervescent; strongly alkaline.

#### Representative Pedon Location

*Map unit in which located:* Typic Torriorthents, 4 to 20 percent slopes

*Location in survey area:* About 3 miles southwest of Oreana, about 1,170 feet north and 1,470 feet west of the southeast corner of sec. 34, T. 4 S., R. 1 W.

#### Range in Characteristics

*Depth to bedrock:* 20 to more than 60 inches

*Depth to lacustrine sediments:* 10 to more than 40 inches

*Texture:* Loamy coarse sand to silty clay loam

*Content of pebbles:* 0 to 70 percent

*Content of clay:* 5 to 30 percent

### **Vanderhoff Series**

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Position on landscape:* Dissected lacustrine terraces

*Parent material:* Mixed alluvium and siltstone

*Slope:* 0 to 20 percent

*Elevation:* 2,400 to 3,400 feet

*Average annual precipitation:* 6 to 8 inches

*Average annual air temperature:* 50 to 52 degrees F

*Frost-free period:* 130 to 150 days

**Taxonomic class:** Coarse-loamy, mixed (calcareous), mesic Typic Torriorthents

#### **Typical Pedon**

A—0 to 3 inches; light gray (10YR 7/2) fine sandy loam, brown (10YR 5/3) moist; moderate medium platy structure; soft, very friable, slightly sticky and slightly plastic; few very fine, fine, and medium roots; strongly effervescent; moderately alkaline; clear smooth boundary.

C1—3 to 11 inches; light gray (10YR 7/2) very fine sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; few very fine, fine, and medium roots; strongly effervescent; moderately alkaline; clear smooth boundary.

C2—11 to 19 inches; light gray (10YR 7/2) very fine sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; few very fine and fine roots; violently effervescent; strongly alkaline; abrupt smooth boundary.

C3—19 to 32 inches; white (2.5Y 8/2) silt loam and slightly weathered, fractured siltstone; fractures 2 to 4 inches apart; massive; hard, firm, sticky and slightly plastic; common very fine roots; violently effervescent; strongly alkaline; abrupt smooth boundary.

2Cr—32 inches; weathered siltstone.

#### **Typical Pedon Location**

*Map unit in which located:* Vanderhoff fine sandy loam, 4 to 12 percent slopes

*Location in survey area:* About 10 miles northwest of Grand View, about 400 feet south and 100 feet east

of the northwest corner of sec. 17, T. 4 S., R. 2 E.

#### **Range in Characteristics**

*Depth to paralithic contact:* 20 to 40 inches

*C horizon:*

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Texture—silt loam, very fine sandy loam, or fine sandy loam

Content of pebbles—0 to 15 percent

### **Van Dusen Series**

*Depth class:* Very deep

*Drainage class:* Well drained

*Position on landscape:* Granitic hills, fan terraces

*Parent material:* Alluvium derived from igneous rock

*Slope:* 2 to 60 percent

*Elevation:* 3,300 to 5,000 feet

*Average annual precipitation:* 13 to 17 inches

*Average annual air temperature:* 45 to 50 degrees F

*Frost-free period:* 90 to 120 days

**Taxonomic class:** Fine-loamy, mixed, mesic Pachic Argixerolls

#### **Typical Pedon**

A1—0 to 7 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; many fine roots; many very fine interstitial pores; neutral; clear smooth boundary.

A2—7 to 15 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; weak thin platy structure; slightly hard, friable, slightly sticky and slightly plastic; many fine roots; many fine tubular pores; neutral; abrupt smooth boundary.

BA—15 to 21 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, firm, sticky and plastic; many fine roots; many fine tubular pores; mildly alkaline; abrupt smooth boundary.

Bt1—21 to 27 inches; yellowish brown (10YR 5/4) clay loam, dark yellowish brown (10YR 3/4) moist; strong medium prismatic structure; hard, firm, sticky and plastic; common fine roots; many fine tubular pores; continuous moderately thick clay films in pores and on faces of peds; mildly alkaline; clear smooth boundary.

Bt2—27 to 40 inches; yellowish brown (10YR 5/4) clay loam, dark yellowish brown (10YR 4/4) moist;

moderate medium angular blocky structure; hard, firm, sticky and plastic; common fine roots; many fine tubular pores; continuous moderately thick clay films in pores and on faces of peds; mildly alkaline; clear smooth boundary.

BC—40 to 42 inches; light yellowish brown (10YR 6/4) loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; slightly hard, firm, sticky and plastic; few fine roots; many fine tubular pores; mildly alkaline; abrupt smooth boundary.

C—42 to 60 inches; very pale brown (10YR 7/3) sandy loam, pale brown (10YR 6/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; strongly effervescent; mildly alkaline.

#### Typical Pedon Location

*Map unit in which located:* Rainey-Van Dusen-Schoolhouse association, 30 to 60 percent slopes  
*Location in survey area:* About 20 miles northwest of Mountain Home, about 1,520 feet north and 1,700 feet west of the southeast corner of sec. 29, T. 1 N., R. 5 E.

#### Range in Characteristics

*Thickness of mollic epipedon:* 20 to 30 inches

##### A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 to 3 dry or moist

##### Bt horizon:

Hue—10YR or 7.5YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 to 5 dry or moist

Texture—sandy clay loam, loam, clay loam, or gravelly loam

Content of pebbles—5 to 25 percent

### Vining Series

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Position on landscape:* Basalt plains

*Parent material:* Eolian and alluvial material derived from various kinds of rock

*Slope:* 0 to 8 percent

*Elevation:* 2,500 to 3,000 feet

*Average annual precipitation:* 8 to 9 inches

*Average annual air temperature:* 50 to 52 degrees F

*Frost-free period:* 130 to 140 days

**Taxonomic class:** Coarse-loamy, mixed, mesic Xerollic Camborthids

#### Typical Pedon

A1—0 to 2 inches; pale brown (10YR 6/3) very stony fine sandy loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, slightly sticky; common very fine roots; mildly alkaline; abrupt smooth boundary.

A2—2 to 4 inches; very pale brown (10YR 7/3) loam, dark brown (10YR 4/3) moist; moderate thin platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine roots; mildly alkaline; abrupt smooth boundary.

Bw—4 to 12 inches; very pale brown (10YR 7/3) loam, brown (10YR 5/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; slightly effervescent; mildly alkaline; clear smooth boundary.

Bk—12 to 23 inches; very pale brown (10YR 7/3) sandy loam, yellowish brown (10YR 5/4) moist; weak medium subangular blocky structure; hard, friable, slightly sticky; strongly effervescent; moderately alkaline; clear smooth boundary.

C—23 to 37 inches; very pale brown (10YR 7/3) sandy loam, dark yellowish brown (10YR 4/4) moist; massive; hard, friable, slightly sticky; few very fine roots; 10 percent cobbles and stones; strongly effervescent; moderately alkaline; abrupt wavy boundary.

R—37 inches; unweathered basalt.

#### Typical Pedon Location

*Map unit in which located:* Vining very stony fine sandy loam, 0 to 8 percent slopes

*Location in survey area:* About 6 miles north of Bruneau, about 1,800 feet south and 550 feet east of the northwest corner of sec. 19, T. 5 S., R. 6 E.

#### Range in Characteristics

*Depth to bedrock:* 20 to 40 inches

*Content of clay in particle-size control section:* 12 to 17 percent

##### A horizon:

Value—5 to 7 dry, 3 or 4 moist

##### Bw and Bk horizons:

Value—6 or 7 dry, 4 or 5 moist

Chroma—3 or 4 dry or moist

Texture—loam, fine sandy loam, or sandy loam

Content of rock fragments—0 to 10 percent

##### C horizon:

Value—6 or 7 dry, 4 or 5 moist

Chroma—3 or 4 dry or moist



Content of rock fragments—5 to 15 percent

### **Taxadjunct Features**

The Vining soils in this survey area have calcium carbonate at a shallower depth than is typical for the series. This difference, however, does not significantly affect use and management.

## **Wagontown Series**

*Depth class:* Deep

*Drainage class:* Somewhat excessively drained

*Position on landscape:* Mountainsides

*Parent material:* Alluvium and colluvium derived from intermediate intrusive rock

*Slope:* 35 to 70 percent

*Elevation:* 4,500 to 6,800 feet

*Average annual precipitation:* 23 to 30 inches

*Average annual air temperature:* 42 to 45 degrees F

*Frost-free season:* 40 to 60 days

**Taxonomic class:** Sandy-skeletal, mixed, frigid Typic Xerochrepts

### **Typical Pedon**

O—1.5 inches to 0; forest litter that includes Douglas fir needles.

A—0 to 6 inches; pale brown (10YR 6/3) gravelly coarse sandy loam, very dark grayish brown (10YR 3/2) moist; weak very fine granular structure; soft, very friable; many very fine and fine roots; 30 percent pebbles; slightly acid; clear wavy boundary.

Bw—6 to 18 inches; light yellowish brown (10YR 6/4) very gravelly coarse sandy loam, brown (10YR 4/3) moist; weak very fine granular structure; soft, very friable; common very fine and fine roots; 30 percent pebbles and 10 percent cobbles; slightly acid; gradual wavy boundary.

C—18 to 41 inches; light yellowish brown (10YR 6/4) very gravelly loamy sand, brown (10YR 4/3) moist; single grain; loose, very friable; common medium and coarse roots; 50 percent pebbles and 20 percent cobbles; slightly acid; abrupt wavy boundary.

R—41 inches; weathered granodiorite.

### **Typical Pedon Location**

*Map unit in which located:* Quartzburg-Wagontown complex, 35 to 70 percent slopes

*Location in survey area:* About 2 miles north of Pine, about 300 feet south and 400 feet west of the northeast corner of sec. 18, T. 2 N., R. 10 E.

### **Range in Characteristics**

*Depth to bedrock:* 40 to 60 inches

*C horizon:*

Value—5 to 7 dry, 4 or 5 moist

Chroma—3 or 4 dry or moist

Texture—loamy sand to coarse sand

Content of pebbles and cobbles—35 to 65 percent

## **Weso Series**

*Depth class:* Very deep

*Drainage class:* Well drained

*Position on landscape:* Alluvial plains, fan terraces, basalt plains

*Parent material:* Alluvium influenced by loess derived from various kinds of rock

*Slope:* 1 to 8 percent

*Elevation:* 2,800 to 3,800 feet

*Average annual precipitation:* 6 to 8 inches

*Average annual air temperature:* 50 to 53 degrees F

*Frost-free period:* 110 to 140 days

**Taxonomic class:** Coarse-loamy, mixed, mesic Duric Camborthids

### **Typical Pedon**

A—0 to 5 inches; pale brown (10YR 6/3) loam, dark grayish brown (10YR 4/2) moist; moderate thin platy structure parting to moderate fine granular; friable, slightly sticky and slightly plastic; many very fine, fine, and medium roots; moderately alkaline; clear smooth boundary.

Bw1—5 to 12 inches; very pale brown (10YR 7/3) loam, brown (10YR 5/3) moist; moderate medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; moderately alkaline; clear smooth boundary.

Bw2—12 to 19 inches; very pale brown (10YR 7/3) loam, brown (10YR 5/3) moist; weak medium and coarse subangular blocky structure; slightly hard, friable, sticky and plastic; few very fine and fine roots; slightly effervescent; moderately alkaline; abrupt wavy boundary.

Bkq—19 to 24 inches; very pale brown (10YR 7/3) fine sandy loam, brown (10YR 4/3) moist; massive; hard, firm; random pockets of white (10YR 8/1), weakly cemented material that is very hard and very firm; pockets are 8 to 10 inches apart; 10 percent fine pebbles; coatings of lime and silica on pebbles; few very fine and fine roots; violently effervescent;

moderately alkaline; abrupt smooth boundary.

C1—24 to 30 inches; very pale brown (10YR 7/3) loam, brown (10YR 5/3) moist; massive; soft, very friable; very few very fine and fine roots; 10 percent fine pebbles; violently effervescent; moderately alkaline; clear smooth boundary.

C2—30 to 60 inches; light gray (10YR 7/2) sandy loam, brown (10YR 5/3) moist; massive; slightly hard, friable; 10 percent fine pebbles; violently effervescent; strongly alkaline.

#### Typical Pedon Location

*Map unit in which located:* Garbutt Weso complex, 0 to 2 percent slopes

*Location in survey area:* About 7 miles northeast of Mountain Home, about 650 feet north and 2,350 feet east of the southwest corner of sec. 21, T. 4 S., R. 4 E.

#### Range in Characteristics

*Depth to secondary lime:* 10 to 15 inches

*Texture of particle-size control section:* Dominantly loam or fine sandy loam, but strata of silt loam in some pedons

*Other characteristics:* As much as 25 percent fine pebbles below a depth of 20 inches in some pedons

*A horizon:*

Chroma—2 or 3 dry or moist

*Bw horizon:*

Value—4 or 5 moist

Chroma—2 or 3 dry or moist

*Bkq horizon:*

Chroma—2 or 3 dry or moist

Content of pebbles—5 to 15 percent

Content of durinodes—5 to 25 percent

*C horizon:*

Value—7 or 8 dry, 5 to 7 moist

Chroma—3 or 4 dry or moist

Content of pebbles—10 to 25 percent

### Willhill Series

*Depth class:* Moderately deep

*Drainage class:* Well drained

*Position on landscape:* Foothills, ridges

*Parent material:* Alluvium derived from rhyolite

*Slope:* 3 to 15 percent

*Elevation:* 3,500 to 4,000 feet

*Average annual precipitation:* 9 to 11 inches

*Average annual air temperature:* 47 to 49 degrees F

*Frost-free period:* 100 to 120 days

**Taxonomic class:** Loamy-skeletal, mixed, mesic Durixerollic Haplargids

#### Typical Pedon

A—0 to 3 inches; grayish brown (10YR 5/2) very stony loam, dark brown (10YR 3/3) moist; moderate medium platy structure; soft, very friable; 10 percent pebbles; slightly effervescent; mildly alkaline; abrupt smooth boundary.

Bt—3 to 8 inches; pale brown (10YR 6/3) gravelly clay loam, dark brown (10YR 4/3) moist; strong medium platy structure; hard, friable, sticky and plastic; 25 percent pebbles; common thin clay films on faces of peds; slightly effervescent; mildly alkaline; gradual wavy boundary.

Bkq—8 to 24 inches; white (10YR 8/2) extremely cobbly loam, light gray (10YR 7/2) moist; 70 percent duripan fragments and cobbles; violently effervescent; moderately alkaline; clear wavy boundary.

R—24 inches; fractured rhyolite.

#### Typical Pedon Location

*Map unit in which located:* Cottle-Willhill complex, 2 to 25 percent slopes

*Location in survey area:* About 15 miles southwest of Bruneau, about 1,200 feet east and 350 feet south of the northwest corner of sec. 35, T. 8 S., R. 4 E.

#### Range in Characteristics

*Depth to bedrock:* 21 to 35 inches

*Depth to discontinuous duripan:* 8 to 20 inches

*A horizon:*

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 to 4 dry or moist

Content of pebbles—10 to 25 percent

*Bt horizon:*

Value—5 or 6 dry, 4 or 5 moist

Chroma—3 or 4 dry or moist

Content of pebbles—25 to 50 percent

Texture—very gravelly clay loam, gravelly clay loam, or very cobbly clay loam

Content of clay—27 to 35 percent

*Bkq horizon:*

Content of pebbles—60 to 80 percent

### Willho Series

*Depth class:* Moderately deep (to a duripan)

*Drainage class:* Well drained

*Position on landscape:* Basalt plains, alluvial terraces

*Parent material:* Alluvium derived from quartz-diorite and granodiorite

*Slope:* 0 to 8 percent

*Elevation:* 4,800 to 5,800 feet

*Average annual precipitation:* 14 to 17 inches

*Average annual air temperature:* 40 to 44 degrees F

*Frost-free period:* 60 to 75 days

**Taxonomic class:** Fine, montmorillonitic, frigid Typic Durixeralfs

### Typical Pedon

A1—0 to 3 inches; light yellowish brown (10YR 6/4) silt loam, dark brown (7.5YR 4/3) moist; weak very thin platy structure parting to weak fine granular; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; common very fine and fine tubular pores; neutral; clear smooth boundary.

A2—3 to 6 inches; brown (7.5YR 5/4) silt loam, dark brown (7.5YR 4/4) moist; strong very thin platy structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine and fine tubular pores; slightly acid; clear smooth boundary.

Bt1—6 to 10 inches; brown (7.5YR 5/4) silty clay loam, dark brown (7.5YR 4/4) moist; weak medium subangular blocky structure parting to weak thick platy; slightly hard, friable, sticky and slightly plastic; common very fine and fine roots; common very fine and few fine tubular pores; common moderately thick clay films lining pores; slightly acid; clear wavy boundary.

Bt2—10 to 13 inches; brown (7.5YR 5/4) silty clay loam, dark brown (7.5YR 4/4) moist; moderate medium subangular blocky structure; hard, friable, sticky and plastic; common very fine and few fine roots; many very fine and few fine tubular pores; many moderately thick clay films lining pores; neutral; gradual wavy boundary.

Bt3—13 to 20 inches; brown (7.5YR 5/4) clay loam, dark brown (7.5YR 4/4) moist; weak coarse prismatic structure parting to moderate medium subangular blocky; very hard, firm, sticky and plastic; common very fine and few fine roots; common very fine and few fine tubular pores; many moderately thick clay films on faces of peds; neutral; abrupt wavy boundary.

Bt4—20 to 27 inches; brown (7.5YR 5/4) clay, dark brown (7.5YR 4/4) moist; strong coarse columnar structure parting to moderate medium prismatic;

very hard, very firm, very sticky and very plastic; few very fine and fine roots; few very fine tubular pores; continuous thick clay films on faces of peds; neutral; clear wavy boundary.

Btqm—27 to 47 inches; reddish yellow (7.5YR 8/6), fractured, indurated duripan, strong brown (7.5YR 5/6) moist; pan consists of very brittle plates 1 to 3 centimeters thick; plates are weakly cemented with laminar opal coatings 1 to 3 millimeters thick and silica pendants on underside; very hard, extremely firm; few very fine roots; common very fine and few fine tubular pores; many moderately thick clay films lining pores; neutral; gradual wavy boundary.

Btq—47 to 74 inches; light yellowish brown (10YR 6/4) silty clay loam, dark brown (10YR 4/3) moist; weak very thick platy structure parting to weak medium angular blocky; very hard, very firm, slightly sticky and slightly plastic; common very fine and fine tubular pores; many thin clay films lining pores; discontinuous weak silica cementation; many black manganese stains; neutral.

### Typical Pedon Location

*Map unit in which located:* Harahill Willho association, 0 to 12 percent slopes

*Location in survey area:* About 8 miles west of Hill City, about 930 feet south and 30 feet east of the northwest corner of sec. 18, T. 1 S., R. 11 E.

### Range in Characteristics

*Depth to duripan:* 20 to 40 inches

*Content of clay in particle-size control section:* 35 to 50 percent

*A horizon:*

Hue—10YR or 7.5YR

Value—5 to 7 dry, 3 to 5 moist

Chroma—3 or 4 dry or moist

*Bt horizon:*

Hue—7.5YR or 10YR

Value—5 to 7 dry, 3 to 5 moist

Chroma—3 to 6 dry or moist

Texture—silty clay loam, clay loam, or clay

*Btqm horizon:*

Hue—7.5YR or 10YR

Value—6 to 8 dry, 5 to 7 moist

Chroma—4 to 6 dry or moist

### Xeric Torriorthents

*Depth class:* Moderately deep to very deep

*Drainage class:* Well drained

*Position on landscape:* Canyonsides, dissected fan terraces, dissected lacustrine terraces  
*Parent material:* Alluvial and lacustrine deposits derived from various kinds of rock  
*Slope:* 8 to 70 percent  
*Elevation:* 2,500 to 4,400 feet  
*Average annual precipitation:* 8 to 11 inches  
*Average annual air temperature:* 48 to 52 degrees F  
*Frost-free period:* 100 to 140 days

#### **Representative Pedon**

- A—0 to 5 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, sticky and plastic; common very fine and fine roots; common very fine and fine vesicular pores; slightly effervescent; moderately alkaline; clear smooth boundary.
- C1—5 to 22 inches; light gray (10YR 7/2) silty clay loam, grayish brown (10YR 5/2) moist; massive; slightly hard, friable, sticky and plastic; common very fine roots; few very fine tubular pores; slightly effervescent; moderately alkaline; clear smooth boundary.
- C2—22 to 60 inches; light gray (10YR 7/2) lenses of consolidated silty clay loam and silty clay, grayish brown (10YR 5/2) moist; massive; very hard, very firm, sticky and plastic; strongly effervescent; strongly alkaline.

#### **Representative Pedon Location**

*Map unit in which located:* Xeric Torriorthents-Xerollic Camborthids complex, 20 to 70 percent slopes  
*Location in survey area:* About 3 miles south of King Hill, about 1,350 feet south and 1,950 feet west of the northeast corner of sec. 25, T. 5 S., R. 10 E.

#### **Range in Characteristics**

*Depth to bedrock:* 20 to more than 60 inches  
*Depth to lacustrine sediment:* 20 to more than 60 inches  
*Texture:* Loamy coarse sand to silty clay loam  
*Content of pebbles and cobbles:* 0 to 60 percent  
*Content of clay:* 10 to 30 percent

### **Xerofluvents**

*Depth class:* Very deep  
*Drainage class:* Somewhat poorly drained to well drained  
*Position on landscape:* Drainageways, flood plains  
*Parent material:* Mixed alluvium  
*Slope:* 0 to 2 percent

*Elevation:* 3,600 to 5,500 feet  
*Average annual precipitation:* 14 to 24 inches  
*Average annual air temperature:* 39 to 48 degrees F  
*Frost-free season:* 70 to 110 days

#### **Representative Pedon**

- A1—0 to 3 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 4/3) moist; weak fine granular structure; loose; many very fine roots and common fine and medium roots; neutral; abrupt smooth boundary.
- A2—3 to 6 inches; brown (10YR 5/3) loamy fine sand, very dark grayish brown (10YR 3/2) moist; single grain; loose; common very fine, fine, and medium roots; neutral; abrupt smooth boundary.
- C1—6 to 9 inches; light yellowish brown (10YR 6/4) sand, yellowish brown (10YR 5/4) moist; few medium distinct reddish brown (5YR 4/4 moist) mottles; single grain; loose; few very fine roots; mildly alkaline; abrupt smooth boundary.
- C2—9 to 12 inches; pale brown (10YR 6/3) loamy fine sand, brown (10YR 4/3) moist; few medium distinct yellowish red (5YR 5/6 moist) mottles; single grain; loose; few very fine roots; mildly alkaline; abrupt smooth boundary.
- C3—12 to 18 inches; light brownish gray (10YR 6/2) fine sandy loam, dark brown (10YR 3/3) moist; few medium distinct yellowish red (5YR 4/6 moist) mottles; massive; soft, very friable; few very fine roots; mildly alkaline; abrupt smooth boundary.
- C4—18 to 28 inches; light yellowish brown (10YR 6/4) fine sandy loam, dark yellowish brown (10YR 3/4) moist; few medium distinct yellowish red (5YR 4/6 moist) mottles; massive; soft, very friable; few very fine roots; mildly alkaline; abrupt smooth boundary.
- C5—28 to 60 inches; variegated sand, gravel, and cobbles.

#### **Representative Pedon Location**

*Map unit in which located:* Haplaquolls-Xerofluvents complex, 0 to 2 percent slopes  
*Location in survey area:* About 11 miles south of Prairie, about 2,300 feet north and 1,100 feet east of the southwest corner of sec. 8, T. 1 S., R. 8 E.

#### **Range in Characteristics**

*Depth to mottles:* 6 to more than 60 inches  
*Depth to water table:* 12 to more than 60 inches  
*Texture:* Stratified coarse sand to clay loam  
*Particle-size control section:*  
 Content of pebbles and cobbles—10 to 50 percent  
 Content of clay—5 to 30 percent

**Xerollic Camborthids**

*Depth class:* Moderately deep to very deep

*Drainage class:* Well drained to excessively drained

*Position on landscape:* Canyon sides, dissected fan terraces, dissected lacustrine terraces

*Parent material:* Alluvium and lacustrine sediment derived from various kinds of rock

*Slope:* 8 to 70 percent

*Elevation:* 2,500 to 4,400 feet

*Average annual precipitation:* 8 to 11 inches

*Average annual air temperature:* 48 to 52 degrees F

*Frost-free period:* 100 to 140 days

**Representative Pedon**

A1—0 to 2 inches; brown (10YR 5/3) sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable; many very fine roots; neutral; abrupt smooth boundary.

A2—2 to 5 inches; pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 4/3) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; neutral; abrupt smooth boundary.

Bw1—5 to 10 inches; pale brown (10YR 6/3) sandy loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; neutral; clear smooth boundary.

Bw2—10 to 14 inches; light brownish gray (10YR 6/2) sandy loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; neutral; clear smooth boundary.

Bk—14 to 24 inches; very pale brown (10YR 7/3) sandy loam, brown (10YR 5/3) moist; massive; slightly hard, friable, slightly sticky; few very fine roots; strongly effervescent; mildly alkaline; abrupt smooth boundary.

2Bk—24 to 28 inches; variegated extremely gravelly sand; massive; hard, firm; 55 percent pebbles and 15 percent cobbles; strongly effervescent; mildly alkaline; clear smooth boundary.

2C—28 to 60 inches; variegated extremely gravelly sand; single grain; loose; 55 percent pebbles and 15 percent cobbles; slightly effervescent; moderately alkaline.

**Representative Pedon Location**

*Map unit in which located:* Xeric Torriorthents-Xerollic Camborthids complex, 20 to 70 percent slopes

*Location in survey area:* About 10 miles southeast of

Bruneau, about 1,300 feet south and 250 feet east of the northwest corner of sec. 6, T. 8 S., R. 7 E.

**Range in Characteristics**

*Depth to bedrock:* 20 to more than 60 inches

*Depth to lacustrine sediment:* 15 to more than 60 inches

*Texture:* Loamy coarse sand to silty clay loam

*Content of pebbles and cobbles:* 0 to 60 percent

*Content of clay:* 5 to 35 percent

**Yutru Series**

*Depth class:* Very deep

*Drainage class:* Well drained

*Position on landscape:* Basalt plains, terraces

*Parent material:* Alluvium derived from volcanic rock

*Slope:* 0 to 12 percent

*Elevation:* 3,600 to 5,400 feet

*Average annual precipitation:* 11 to 15 inches

*Average annual air temperature:* 45 to 48 degrees F

*Frost-free period:* 80 to 100 days

**Taxonomic class:** Fine, montmorillonitic, mesic Vertic Xerochrepts

**Typical Pedon**

A1—0 to 2 inches; light brownish gray (10YR 6/2) very stony silty clay, dark grayish brown (10YR 4/2) moist; moderate fine granular structure; hard, friable, sticky and plastic; few fine roots; neutral; clear smooth boundary.

A2—2 to 8 inches; brown (10YR 5/3) very stony silty clay, dark brown (10YR 4/3) moist; moderate medium platy structure; hard, friable, sticky and plastic; few fine roots; neutral; clear wavy boundary.

Bw1—8 to 21 inches; pale brown (10YR 6/3) silty clay, brown (10YR 5/3) moist; moderate coarse subangular blocky structure; very hard, firm, very sticky and very plastic; few fine roots; common pressure faces and few slickensides; neutral; clear wavy boundary.

Bw2—21 to 34 inches; light brownish gray (10YR 6/2) silty clay, brown (10YR 5/3) moist; weak coarse subangular blocky structure; very hard, firm, very sticky and very plastic; few fine roots; mildly alkaline; clear smooth boundary.

BC—34 to 45 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 5/3) moist; massive; hard, firm, sticky and plastic; mildly alkaline; clear smooth boundary.

C—45 to 60 inches; very pale brown (10YR 7/3) silt

loam, pale brown (10YR 6/3) moist; massive; hard, firm, slightly sticky and slightly plastic; slightly effervescent; mildly alkaline.

**Typical Pedon Location**

*Map unit in which located:* Yutru very stony silty clay, 0 to 12 percent slopes

*Location in survey area:* About 7 miles northeast of King

Hill, about 400 feet south and 1,240 feet west of the northeast corner of sec. 24, T. 4 S., R. 11 E.

**Range in Characteristics**

*Particle-size control section:*

Content of rock fragments—0 to 15 percent

Content of clay—40 to 55 percent

Texture—silty clay or clay

# Formation of the Soils

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Soils form as a result of physical and chemical weathering of deposited or accumulated geologic material. The characteristics of a soil are determined by (1) the climate under which the soil material has accumulated and existed since accumulation; (2) the plant and animal life on and in the soil; (3) the relief of the land; (4) the length of time the processes of soil formation have acted on the soil material; and (5) the chemical and mineralogical composition of the parent material (4, 5).

Climate and plant and animal life, mainly plants, are the active factors of soil formation. They act on the parent material that has accumulated through weathering and slowly change it into a soil that has genetically related horizons. The effects of climate and plant and animal life are conditioned by relief. The parent material also affects the kind of soil profile that forms, and in extreme cases it determines the characteristics of the profile almost entirely. Finally, time is needed to change the parent material into a soil. Generally, a long period of time is needed for the development of distinct horizons.

The factors of soil formation are so closely interrelated that few generalizations can be made regarding the effect of any one factor unless conditions are specified for the other four.

## Climate

Climate generally is the most influential factor in the formation of soils in this survey area. High precipitation and warm temperatures speed up the rate of physical and chemical decomposition of parent material (5). Accelerated decomposition of parent material results in faster and more extensive soil development through leaching, eluviation, and illuviation.

Climate also has a profound effect on living organisms. High precipitation results in greater plant production and thus a higher content of organic matter in the soil. Temperature affects the rate at which organic matter breaks down.

The climate in the survey area is warm and dry in summer and generally is cool and moist in winter. Precipitation is not well distributed throughout the year; about 87 percent of the average annual precipitation is received from November through June (13). At the higher elevations, much of this precipitation falls as snow.

Some of the older soils in the survey area have a well developed argillic horizon and a large amount of illuvial clay. These soils probably developed mainly during the Pleistocene (10,000 to 50,000 years ago), when the average annual precipitation was much greater than it is now.

Soil temperatures in the survey area vary greatly, primarily because of the differences in elevation. Total relief in the survey area is 5,900 feet. Average annual soil temperatures at the lower elevations on the Snake River Plain range from 50 to 56 degrees F. The soils in these areas are in a mesic temperature regime. In areas at elevations above 4,000 feet on the foothills and mountains in the northern part of the survey area and on the Owyhee uplands in the southwestern part, the average annual soil temperatures range from 37 to 51 degrees F, depending mainly on aspect. Most of the soils in the foothills are in a mesic temperature regime; those in the higher mountains are in a frigid temperature regime; and those on the steep, north-facing slopes above 4,500 feet are in a cryic temperature regime.

Average annual precipitation in the survey area also varies greatly, mainly because of the differences in elevation. Precipitation ranges from about 6.4 inches at Bruneau to about 35 inches on the highest peaks and ridges in the northern part of the survey area. On the Snake River Plain, where precipitation ranges from less than 7 inches to about 12 inches annually, most of the soils are in an aridic moisture regime. A few poorly drained soils, such as those on the Bruneau and Snake River bottom lands, are in an aquic moisture regime. In areas on the Snake River Plain where precipitation averages about 0.8 inch during the period from July

through September, the soils commonly are shallow or moderately deep to a duripan (Durargids and Durorthids) because the low precipitation allows the soils to dry out and the calcium carbonate and silica in the soils to precipitate.

Most of the soils at the higher elevations, where the average annual precipitation is more than about 13 inches, are in a xeric moisture regime. A few soils on the foothills are in an aridic moisture regime. Some poorly drained soils on stream bottom lands are in an aquic moisture regime. Few soils in this survey area above 4,600 feet have a duripan, but those that do generally are cemented with silica and do not have calcium carbonate in the profile.

## Living Organisms

Living organisms, or plants and animals, play a significant role in soil formation (5). The kind and amount of vegetation that grows on the soils have a strong influence on the development of some soils in the survey area.

The kind and amount of living organisms found in the area are largely dependent on climatic factors. Soils that formed at elevations below about 3,000 feet, where the average annual precipitation is less than about 8 inches, support little vegetation. The vegetation is primarily shadscale, bud sagebrush, winterfat, Indian ricegrass, and Thurber needlegrass. Because of the limited plant production, only very small amounts of organic matter are added to these soils annually; thus, the soils have a light-colored surface horizon. Dors, Garbutt, Loray, McKeeth, Perazzo, and Ornea soils are examples.

At elevations of about 3,000 to 4,000 feet, the soils receive 8 to 12 inches of precipitation annually and temperatures are slightly lower. Soils at these elevations support Wyoming big sagebrush, Thurber needlegrass, and bluebunch wheatgrass. Plant production is higher; therefore, organic matter content is also slightly higher. These soils have a thin, dark surface horizon. Chilcott, Chardoton, Elijah, Lankbush, and Power soils are examples.

At elevations of 4,000 to 6,000 feet, the average annual precipitation is 12 to 20 inches. Soils at these elevations produce more vegetation, including mountain big sagebrush, bluebunch wheatgrass, and Idaho fescue. The soils have a higher organic matter content and a thicker, darker surface horizon. Bauscher, Simonton, and Van Dusen soils are examples.

At the highest elevations, average annual precipitation is 20 to 35 inches. The main vegetation is

ponderosa pine and Douglas fir and elk sedge, ninebark, mountain maple, white spirea, and other understory plants. Many of the soils in these areas have an organic mat of needles, leaves, and twigs on the surface, and they have a dark surface horizon. Coski, Grousecreek, and Broad Canyon soils are examples.

## Relief

The survey area is characterized by steep mountains, gently rolling to steep foothills, undulating basalt plains and alluvial plains, dissected lacustrine terraces, alluvial terraces, and flood plains. These surfaces formed through geologic action, and they affect the formation of soils by influencing erosion, effective precipitation, soil drainage, air drainage, and exposure to sun and wind (5).

Throughout the survey area, the soils that occur in stable landscape positions generally exhibit the greatest degree of development, mainly because the rates of erosion and runoff are lower in these areas. On the steeper slopes, the parent material is less stable and the rates of runoff and erosion are higher.

Aspect is also an important factor, particularly at the higher elevations. Soils on north and east aspects receive less sunlight than those on south and west aspects. As a result, the soil temperatures are lower and the snow stays longer, thereby providing moisture longer into the growing season. The soils on north and east aspects produce a thick plant cover that helps to prevent erosion; consequently, they are deeper than the soils on south and west aspects. Because the lower soil temperatures inhibit the breakdown of organic matter, the soils have a thick, dark surface horizon. Bauscher, Oland, and Van Dusen soils are examples. These soils also occur on south and west aspects at elevations above 6,500 feet.

Soils on south and west aspects typically are shallower and have a thinner surface horizon than those on north and east aspects. Direct sunlight heats and dries out these soils quickly during the growing season. This process speeds up the breakdown of organic matter but limits plant growth, which results in a thin, dark surface horizon. More erosion takes place because of the limited ground cover; thus, the soils are shallower. Examples of these soils are those of the Roanhide, Rainey, Gaib, and Elkcreek series.

## Time

The variability of the climate, parent material, relief, and vegetation results in a wide variety of soils in the



survey area; however, the different horizons present in the soils and the degree of their development can be related directly to time (5). The age of the landforms and parent material in the area varies greatly. The relationship between age and soil development is further discussed in the following section.

## Parent Material and Geology

The kinds of parent material in the survey area include recent sedimentary deposits, old alluvial deposits, basalt flows, lacustrine deposits, and dissected igneous and metamorphic rock.

**Recent sedimentary deposits.** Soils in this survey area that formed in alluvium and eolian sand deposited within the last 10,000 years are on flood plains, low stream terraces, stabilized sand dunes, and alluvial fans. These soils generally are weakly developed, and they commonly exhibit some stratification.

Alluvium was deposited on the flood plains in the area during periods of stream aggradation. This geologic activity is still occurring on many of the flood plains. A major flood plain on which this is no longer taking place, however, is along the Snake River, where the large hydropower and flood-control dams prevent additional deposition. Relatively young soils with widely varying textures formed in the alluvial material on flood plains. These soils commonly are poorly drained or somewhat poorly drained because of the presence of a high water table. An example is soils of the Bram series (Xerollic Calciorthids), which have a seasonal high water table at a depth of 30 to 60 inches. Examples of other soils on the flood plains in the survey area are those of the Letha (Aeric Haplaquepts) and Grandview (Typic Calciorthids) series.

The alluvium on low stream terraces was also deposited during periods of stream aggradation. This alluvium was later isolated from any subsequent alluvial deposition during a period of stream degradation. Thus the alluvium on low terraces has stabilized somewhat, and the soils in these areas are slightly more developed than those on the flood plains. The soils generally have a cambic horizon, and they have good drainage. Examples of soils on low terraces in the survey area are those of the Royal and Davey series (Xerollic Camborthids).

A few soils that formed in alluvium on flood plains and low terraces are at the higher elevations. Examples are the soils of the Brinegar (Pachic Ultic Argixerolls) and Houk (Argiaquic Xeric Argialbolls) series. These soils formed in an area of higher precipitation and lower temperatures, and they support a plant community

consisting mainly of grasses. They have a thick, dark surface horizon and an argillic horizon.

Sand originally was deposited in the survey area by stream action during the late Pleistocene, and it was reworked by wind as the climate became drier during recent geologic time. This eolian sand has formed into dunes during the last 10,000 years. Some of these dunes, such as those in Bruneau Dunes State Park, are still geologically active, and some have been stabilized by vegetation. Sandy soils, such as those of the Quincy series (Xeric Torripsamments), formed in this material. These soils generally exhibit geologic stratification, but they do not have discernible diagnostic horizons.

**Old alluvial deposits.** Soils in this survey area on old dissected plateaus, piedmont plains, and smaller stream terraces formed in alluvium that was deposited during the Pleistocene (10,000 to 2,000,000 years ago) (12).

Alluvium was deposited on the plateaus by the ancient Snake and Bruneau Rivers and by other, smaller streams during the early and middle Pleistocene. The plateaus later were shaped and isolated by stream degradation and were left as erosional remnants several hundred feet above the modern Snake and Bruneau Rivers. The parent material is a mixture of silicic volcanic alluvium and quartzitic alluvium with a large amount of loess in some areas. The plateaus have been stable long enough for the soils to form cambic and argillic horizons. Accumulations of calcium carbonate are present in most of the soils, and a duripan that is weakly to strongly cemented with calcium carbonate and silica has formed in some areas. Examples of soils on these dissected plateaus are those of the Buko (Durixerollic Camborthids), Truesdale (Haploxerollic Durorthids), Scoon (Xerollic Durorthids), and Elijah (Xerollic Duragids) series.

The alluvium on the piedmont plains originally was deposited as alluvial fans at the base of the foothills and mountains on both sides of the Snake River Plain. These fans expanded and eventually coalesced to form piedmont alluvial plains. The material was derived from the Idavada Volcanics (latite and rhyolite), Challis Volcanics (mostly dacite), and Idaho Batholith (quartz-diorite and granodiorite), and it contains loess in many areas. Accumulations of calcium carbonate are present in the soils on the piedmont plains adjacent to the Owyhee uplands. Precipitation is lower on these piedmont plains than on those along the northern mountains, where some of the soils do not have calcium carbonate in the profile. An indurated duripan is common in the soils in both areas. The higher

precipitation on the northern side of the Snake River Plain has resulted in more translocation and concentration of clay in the soil profile; thus, the soils along the northern foothills have a clayey argillic horizon. Examples of soils on piedmont plains are those of the Ornea (Typic Haplargids), Shoofly (Typic Durargids), Lankbush (Xerollic Haplargids), and Chilcott (Abruptic Xerollic Durargids) series.

**Basalt flows.** Basalt plains and terraces are extensive in the survey area, and they commonly have a mantle of loess and alluvium. The basalt flows have occurred periodically over a wide span of time (Miocene to Recent). The Banbury Basalt (late Miocene) is the oldest flow; it is estimated to be 8.0 to 10.5 million years old (3). This basalt is quite extensive on the Snake River Plain, in the southern part of the survey area. Basalts of the Bruneau Formation (middle Pleistocene) and the Snake River Group (late Pleistocene) are also fairly extensive on the Snake River Plain, near Mountain Home. The McKinney Basalt (Recent), the youngest flow in the survey area, is southeast of King Hill.

In most cases, time has not been an important factor in determining the soil types that occur on the basalt landforms in this survey area. Time has been important, however, in the formation of soils in areas of the McKinney and Banbury Basalts north of the Snake River. The McKinney Basalt is relatively very young geologically (less than 10,000 years old); therefore, it does not have a complete mantle of loess or alluvium as do the other basalt flows. About 15 to 20 percent of the McKinney Basalt occurs as rock outcroppings. Soils that formed in areas of Banbury Basalt south of the Snake River and in the Bruneau Formation and Snake River Group basalts, which span a period of about 10 million years, are in various stages of development, depending mainly on location and climate.

Areas of the Banbury Basalt on the southern side of the Snake River Plain are covered by a mantle of loess and silty alluvium that is more than 5 feet thick in most places. In these areas the basalt below the mantle has weathered very little, and the soils exhibit very little, if any, basalt influence. Areas of the Banbury Basalt north of King Hill, on the eastern side of the survey area, have been faulted and are in a higher precipitation zone. They have been exposed for a long period; thus, more weathering has taken place, especially in the fault zone. Local alluvium and loess have had an important influence on the soils in these areas, particularly in the upper part of the profile. The soils in areas south of the Snake River generally have a weaker argillic or cambic horizon than those in areas north of the river. Texture

ranges from coarse-silty and fine-silty south of the river to clayey and clayey-skeletal north of the river. Examples of soils south of the Snake River are those of the Shano (Xerollic Camborthids), Owsel (Durixerollic Haplargids), and Purdam (Haploxerollic Durargids) series, and examples of soils north of the river are those of the Ruckles (Lithic Argixerolls), Yutru (Vertic Xerochrepts), and Karcal (Entic Chromoxererts) series.

The Bruneau Formation and Snake River Group basalt flows occurred at different times during the Pleistocene, but similar soils have formed on both flows in some areas. The Snake River cut through these basalt formations at a time of stream degradation during the late Pleistocene. This degradation left a basalt terrace several hundred feet above the valley floor on the northern side of the Snake River Plain. The terrace later was mantled by loess and silty alluvium. Examples of soils that formed on terraces near Mountain Home are those of the Trevino (Lithic Xerollic Camborthids), Colthorp (Xerollic Durargids), and Kunaton (Abruptic Xerollic Durargids) series.

At about the same time lava was flowing onto the Snake River Plain, basalt was filling some mountain valleys and canyons in the northern part of the survey area. Most of this basalt, such as that of the Bruneau Basalt around High Prairie, has weathered as a result of the higher precipitation at these higher elevations. Loess and local alluvium also have influenced the kinds of soils that formed in some of these mountainous areas, such as those that formed in the basalt flows of Pleistocene age on Smith Prairie. Examples of soils that formed in valley fill in the mountains are those of the Harahill (Pachic Ultic Haploxerolls) and Gaib (Lithic Ultic Argixerolls) series.

Soil development in areas of the Bruneau Formation and Snake River Group basalt flows near Mountain Home ranges from weak near the Snake River Canyon rim to strong near the foothills because of the variation in the amount of precipitation received. Precipitation gradually increases from the Snake River to the foothills. Texture of the soils ranges from coarse-loamy near the terrace rim to clayey near the foothills northeast of Mountain Home. Texture of the soils on the valley fill basalt in the mountains ranges from fine-loamy to clayey.

**Lacustrine deposits.** Lacustrine deposits are fairly extensive on the plain south of the Snake River. They are highly dissected and eroded in most areas. Three different major lacustrine deposits are in Elmore and Owyhee Counties, but similar soils have formed in all three deposits. These lake sediments were deposited periodically over a total time span of about 7 million

years. The soils that developed in these sediments generally are medium textured to fine textured; however, the soils in some areas where the lake sediments have been mantled by alluvium from younger sedimentary deposits are moderately coarse textured.

The Chalk Hills Formation (late Miocene and early Pliocene) is the oldest of the major lacustrine deposits in the survey area (15). The lakebeds in this formation consist of consolidated layers of silt, clay, diatomite, and volcanic ash (14), as do the other major lacustrine formations. A variety of soils have formed in this material, depending on the stratum in which the soils formed. Soils that formed in this material generally are coarse-loamy to fine-silty Typic Torriorthents.

The Glenns Ferry Formation (late Pliocene and early Pleistocene) is an extensive formation that outcrops frequently near the Snake River. It consists of both lake and stream deposits. The deposits of silt and clay in this formation have been compacted into weakly consolidated mudstone that is highly erodible. The soils that formed in this material generally are influenced by sand from alluvium that was deposited on the lakebeds and then was eroded and redeposited. Examples of soils that formed in material of the Glenns Ferry Formation are those of the Vanderhoff (Typic Torriorthents) and Greenleaf (Xerollic Haplargids) series.

The Bruneau Formation (middle Pleistocene) has the youngest lacustrine deposits in the survey area. The soils that formed in this material commonly are influenced by alluvial sand and are very similar to those of the Glenns Ferry Formation. The Vanderhoff and Greenleaf series and some Typic Torriorthents are examples of soils that formed in this material.

**Dissected igneous and metamorphic rock.** Foothills and mountains are extensive in the northern part of the survey area. They also occur in a small area in the southwestern part. The main geologic formations in the foothills and mountains are the Idavada Volcanics (Miocene), Idaho Batholith (Cretaceous), and House Mountain Metamorphics (Precambrian) (6). The mountains and foothills formed as a result of uplift that occurred on both sides of the Snake River Plain during the Cenozoic era. Erosion and dissection of the Idaho Batholith and Idavada Volcanics are ongoing as a result of continuous uplift. The soils that have formed on these erosional surfaces are quite variable. Generally, weakly developed soils are on the steepest slopes at the highest elevations, where the precipitation is high and the temperatures are cool. Soils that have an argillic horizon generally are on less steep, more stable

slopes at the lower elevations, where precipitation also is lower.

The parent material in the foothills and mountains is intermediate to acidic. The soils that formed in this material have been leached as a result of the higher precipitation. Several soils that are classified as Ultic have formed in the mountains.

Relief has also been an important factor in the formation of the soils on the mountains. The soils on the steepest slopes commonly have the weakest development, because the parent material is constantly moving slowly downslope. The soils in these unstable areas have few diagnostic horizons.

Areas of the Idavada Volcanics are in the front foothills and mountains on both sides of the Snake River Plain. This volcanic rock is dominantly silicic. Latite is most common, but minor areas of rhyolite and andesite are present. Slopes are mostly steep or very steep. The soils on these slopes formed in residual, colluvial, and alluvial material derived from the volcanic rock. These soils generally have low base saturation, a high content of rock fragments, and an argillic horizon. They commonly are loamy-skeletal, fine-loamy, or clayey-skeletal. Examples of soils that formed in these areas are those of the Immiant (Typic Argixerolls), Elk creek (Ultic Argixerolls), and Gaib (Lithic Ultic Argixerolls) series.

The Idaho Batholith is quite extensive on the northern side of the Snake River Plain, but it also occurs in small areas in the southwestern part of the survey area. The batholith is mostly coarse-grained (intrusive), intermediate rock. Granodiorite and quartz-diorite are most common, but minor areas of quartz-monzonite are also present. Slopes range from moderately steep to extremely steep. The soils that formed in material weathered from this coarse-grained rock generally have relatively low base saturation because of the higher precipitation, which is 20 to 35 inches annually in most areas. This higher precipitation has also resulted in a denser plant cover, higher organic matter content, and darker surface horizon. The soils commonly exhibit only weak development because of the steep, unstable slopes, and they generally are coarse-loamy, loamy-skeletal, or sandy-skeletal. Examples of soils that formed in these areas are those of the Roanhide (Ultic Haploxerolls), Broad Canyon (Typic Cryoborolls), and Rainey (Entic Haploxerolls) series.

The House Mountain Metamorphics, which are part of the Idaho Batholith, are in the vicinity of Anderson Dam. These are the oldest rocks in the survey area.

They apparently were pushed up from a great depth during the Tertiary and then were exposed by erosion. Gneiss, schist, and quartzite are most common (6). The age of these rocks apparently has had little to do with the kinds of soils that have formed; relief has been a more important factor. The steep to extremely steep

slopes are unstable; consequently, the soils in these areas generally are weakly developed and have a high content of rock fragments. They commonly are loamy-skeletal, sandy-skeletal, or coarse-loamy. Examples are soils of the Schoolhouse (Lithic Xerorthents) and Oland (Pachic Ultic Haploxerolls) series.

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# Glossary

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**Aeration, soil.** The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

**Aggregate, soil.** Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

**Alluvial fan.** The fanlike deposit of a stream where it issues from a gorge upon a plain or of a tributary stream near or at its junction with its main stream.

**Alluvium.** Material, such as sand, silt, or clay, deposited on land by streams.

**Animal-unit-month (AUM).** The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

**Area reclaim** (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

**Association, soil.** A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

**Available water capacity (available moisture capacity).** The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as—

Low .....	0 to 4
Moderate .....	4 to 7
High .....	more than 7

**Badland.** Steep or very steep, commonly nonstony, barren land dissected by many intermittent drainage channels. Badland is most common in

semiarid and arid regions where streams are entrenched in soft geologic material. Local relief generally ranges from 25 to 500 feet. Runoff potential is very high, and geologic erosion is active.

**Basal area.** The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

**Base saturation.** The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, K), expressed as a percentage of the total cation-exchange capacity.

**Bedrock.** The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

**Bench terrace.** A raised, level or nearly level strip of earth constructed on or nearly on the contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

**Blowout.** A shallow depression from which all or most of the soil material has been removed by wind. A blowout has a flat or irregular floor formed by a resistant layer or by an accumulation of pebbles or cobbles. In some blowouts the water table is exposed.

**Bottom land.** The normal flood plain of a stream, subject to flooding.

**Boulders.** Rock fragments larger than 2 feet (60 centimeters) in diameter.

**Breaks.** The steep to very steep broken land at the border of an upland summit that is dissected by ravines.

**Brush management.** Use of mechanical, chemical, or biological methods to reduce or eliminate competition of woody vegetation to allow understory grasses and forbs to recover or to make conditions favorable for reseeding. It increases production of forage, which reduces the

hazard of erosion. Brush management may improve the habitat for some species of wildlife.

**Butte.** An isolated small mountain or hill with steep or precipitous sides and a top variously flat, rounded, or pointed that may be a residual mass isolated by erosion or an exposed volcanic neck.

**Cable yarding.** A method of moving felled trees to a nearby central area for transport to a processing facility. Most cable yarding systems involve use of a drum, a pole, and wire cables in an arrangement similar to that of a rod and reel used for fishing. To reduce friction and soil disturbance, felled trees generally are reeled in while one end is lifted or the entire log is suspended.

**Calcareous soil.** A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

**Canopy.** The leafy crown of trees or shrubs. (See Crown.)

**Canyon.** A long, deep, narrow, very steep-sided valley with high, precipitous walls in an area of high local relief.

**Capillary water.** Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

**Cation.** An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

**Cation-exchange capacity.** The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

**Channery soil.** A soil that is, by volume, more than 15 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches along the longest axis. A single piece is called a channer.

**Chemical treatment.** Control of unwanted vegetation by use of chemicals.

**Clay.** As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

**Clay film.** A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

**Claypan.** A slowly permeable soil horizon that contains much more clay than the horizons above it. A claypan is commonly hard when dry and plastic or stiff when wet.

**Climax plant community.** The plant community on a given site that will be established if present environmental conditions continue to prevail and the site is properly managed.

**Coarse fragments.** Mineral or rock particles larger than 2 millimeters in diameter.

**Coarse textured soil.** Sand or loamy sand.

**Cobble (or cobblestone).** A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

**Cobbly soil material.** Material that is 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material is 35 to 60 percent of these rock fragments, and extremely cobbly soil material is more than 60 percent.

**Colluvium.** Soil material, rock fragments, or both moved by creep, slide, or local wash and deposited at the base of steep slopes.

**Complex slope.** Irregular or variable slope. Planning or constructing terraces, diversions, and other water-control measures on a complex slope is difficult.

**Complex, soil.** A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

**Concretions.** Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

**Conglomerate.** A coarse grained, clastic rock composed of rounded to subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer material. Conglomerate is the consolidated equivalent of gravel.

**Conservation cropping system.** Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, soil-improving crops and practices more than offset the soil-depleting crops and deteriorating practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a



conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

**Consistence, soil.** The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

*Loose.*—Noncoherent when dry or moist; does not hold together in a mass.

*Friable.*—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

*Firm.*—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

*Plastic.*—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a “wire” when rolled between thumb and forefinger.

*Sticky.*—When wet, adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.

*Hard.*—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

*Soft.*—When dry, breaks into powder or individual grains under very slight pressure.

*Cemented.*—Hard; little affected by moistening.

**Contour stripcropping (or contour farming).** Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

**Control section.** The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

**Corrosive.** High risk of corrosion to uncoated steel or deterioration of concrete.

**Cover crop.** A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

**Cropping system.** Growing crops using a planned system of rotation and management practices.

**Crop residue management.** Returning crop residue to the soil. Crop residue management helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

**Crown.** The upper part of a tree or shrub, including the living branches and their foliage.

**Cutbanks cave** (in tables). The walls of excavations tend to cave in or slough.

**Decreasers.** The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

**Deferred grazing.** Postponing grazing or resting grazing land for a prescribed period.

**Depth to rock** (in tables). Bedrock is too near the surface for the specified use.

**Desert pavement.** A layer of gravel or coarser fragments on a desert soil surface that was emplaced by upward movement of fragments from underlying sediment or that remains after finer particles have been removed by running water or wind.

**Diversion (or diversion terrace).** A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

**Drainage class** (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

*Excessively drained.*—These soils have very high and high hydraulic conductivity and low water-holding capacity. They are not suited to crop production unless irrigated.

*Somewhat excessively drained.*—These soils have high hydraulic conductivity and low water-holding capacity. Without irrigation, only a narrow range of crops can be grown and yields are low.

*Well drained.*—These soils have intermediate water-holding capacity. They retain optimum amounts of moisture, but they are not wet close enough to the surface or long enough during the growing season to adversely affect yields.

*Moderately well drained.*—These soils are wet close enough to the surface or long enough that planting or harvesting operations or yields of some field crops are adversely affected unless artificial drainage is provided. Moderately well drained soils commonly have a layer with low hydraulic conductivity, a wet layer relatively high in the profile, additions of water by seepage, or some combination of these.

*Somewhat poorly drained.*—These soils are wet close enough to the surface or long enough that

planting or harvesting operations or crop growth is markedly restricted unless artificial drainage is provided. Somewhat poorly drained soils commonly have a layer with low hydraulic conductivity, a wet layer high in the profile, additions of water through seepage, or a combination of these.

*Poorly drained.*—These soils commonly are so wet at or near the surface during a considerable part of the year that field crops cannot be grown under natural conditions. Poorly drained conditions are caused by a saturated zone, a layer with low hydraulic conductivity, seepage, or a combination of these.

*Very poorly drained.*—These soils are wet to the surface most of the time. They are wet enough to prevent the growth of important crops (except rice) unless artificially drained.

**Drainage, surface.** Runoff, or surface flow of water, from an area.

**Duripan.** A subsurface horizon that is cemented with silica to the extent that fragments do not slake upon prolonged soaking in water or hydrochloric acid.

**Eluviation.** The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

**Eolian soil material.** Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

**Ephemeral stream.** A stream or reach of a stream that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

**Erosion.** The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

*Erosion* (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

*Erosion* (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of the activities of man or other animals or of a catastrophe in nature, for example, fire, that exposes the surface.

**Escarpment.** A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and produced by erosion or faulting. Synonym: scarp.

**Excess fines** (in tables). Excess silt and clay in the soil. The soil is not a source of gravel or sand for construction purposes.

**Excess salts** (in tables). Excess water-soluble salts in the soil that restrict the growth of most plants.

**Excess sodium** (in tables). Excess exchangeable sodium in the soil. The resulting poor physical properties restrict the growth of plants.

**Extrusive rock.** Igneous rock derived from deep-seated molten matter (magma) emplaced on the earth's surface.

**Fan terrace.** A relict alluvial fan, no longer a site of active deposition, incised by younger and lower alluvial surfaces.

**Fast intake** (in tables). The rapid movement of water into the soil.

**Fertility, soil.** The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

**Fibric soil material (peat).** The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

**Field moisture capacity.** The moisture content of a soil, expressed as a percentage of the oven-dry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity*, *normal moisture capacity*, or *capillary capacity*.

**Fine textured soil.** Sandy clay, silty clay, and clay.

**Flood plain.** A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

**Fluvial.** Of or pertaining to rivers; produced by river action, as a fluvial plain.

**Foothill.** A steeply sloping upland that has relief of as much as 1,000 feet (or 300 meters) and fringes a mountain range or high-plateau escarpment.

**Foot slope.** The inclined surface at the base of a hill.

**Forb.** Any herbaceous plant not a grass or a sedge.

**Frost action** (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings and other structures, and plant roots.

**Genesis, soil.** The mode of origin of the soil. Refers

especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

**Glacial outwash** (geology). Gravel, sand, and silt, commonly stratified, deposited by glacial meltwater.

**Glacial till** (geology). Unsorted, nonstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial ice.

**Gleyed soil.** Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors and mottles.

**Gravel.** Rounded or angular fragments of rock up to 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

**Gravelly soil material.** Material that is 15 to 50 percent, by volume, rounded or angular rock fragments, not prominently flattened, up to 3 inches (7.6 centimeters) in diameter.

**Ground water** (geology). Water filling all the unblocked pores of underlying material below the water table.

**Gully.** A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

**Hard bedrock.** Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

**Hardpan.** A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance. A rippable hardpan is one that can be penetrated and broken easily by standard tillage equipment.

**Hemic soil material (mucky peat).** Organic soil material intermediate in degree of decomposition between the less decomposed fibric and the more decomposed sapric material.

**Hill.** A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

**Horizon, soil.** A layer of soil, approximately parallel to

the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. The major horizons are as follows:

*O horizon.*—An organic layer of fresh and decaying plant residue.

*A horizon.*—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, any plowed or disturbed surface layer.

*E horizon.*—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

*B horizon.* The mineral horizon below an O, A, or E horizon. The B horizon is in part a layer of transition from the overlying horizon to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) granular, prismatic, or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

*C horizon.*—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying horizon. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

*Cr horizon.*—Soft, consolidated bedrock beneath the soil.

*R layer.*—Hard, consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon but can be directly below an A or a B horizon.

**Humus.** The well decomposed, more or less stable part of the organic matter in mineral soils.

**Hydrologic soil groups.** Refers to soils grouped according to their runoff-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff. Soils are assigned to four groups. In group A are soils having a high infiltration rate when thoroughly wet and having a low runoff potential. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, are

soils having a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a permanent high water table, or are shallow over nearly impervious bedrock or other material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

**Igneous rock.** Rock formed by solidification from a molten or partially molten state. Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.

**Illuviation.** The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

**Impervious soil.** A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

**Increasers.** Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.

**Infiltration.** The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

**Infiltration rate.** The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

**Intake rate.** The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application.

**Intermittent stream.** A stream or reach of a stream that flows for prolonged periods only when it receives ground water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

**Invaders.** On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, invader plants follow disturbance of the surface.

**Irrigation.** Application of water to soils to assist in production of crops. Methods of irrigation are—  
*Border.*—Water is applied at the upper end of a strip in which the lateral flow of water is controlled

by small earth ridges called border dikes, or borders.

*Controlled flooding.*—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

*Corrugation.*—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

*Drip (or trickle).*—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

*Furrow.*—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

*Sprinkler.*—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

**Lacustrine deposit** (geology). Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

**Landslide.** The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

**Large stones** (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

**Leaching.** The removal of soluble material from soil or other material by percolating water.

**Liquid limit.** The moisture content at which the soil passes from a plastic to a liquid state.

**Loam.** Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

**Loess.** Fine grained material, dominantly of silt-sized particles, deposited by wind.

**Low strength.** The soil is not strong enough to support loads.

**Mechanical treatment.** Use of mechanical equipment for seeding, brush management, and other management practices.

**Medium textured soil.** Very fine sandy loam, loam, silt loam, or silt.

**Metamorphic rock.** Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

**Mineral soil.** Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

**Minimum tillage.** Only the tillage essential to crop production and prevention of soil damage.

**Miscellaneous area.** An area that has little or no natural soil and supports little or no vegetation.

**Moderately coarse textured soil.** Coarse sandy loam, sandy loam, and fine sandy loam.

**Moderately fine textured soil.** Clay loam, sandy clay loam, and silty clay loam.

**Morphology, soil.** The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

**Mottling, soil.** Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows: abundance—*few*, *common*, and *many*; size—*fine*, *medium*, and *coarse*; and contrast—*faint*, *distinct*, and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

**Mountain.** A natural elevation of the land surface, rising more than 1,000 feet above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides and considerable bare-rock surface. A mountain can occur as a single, isolated mass or in a group forming a chain or range.

**Muck.** Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

**Mudstone.** Sedimentary rock formed by induration of silt and clay in approximately equal amounts.

**Munsell notation.** A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color of 10YR hue, value of 6, and chroma of 4.

**Neutral soil.** A soil having a pH value between 6.6 and 7.3. (See Reaction, soil.)

**Nutrient, plant.** Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

**Observed rooting depth.** Depth to which roots have been observed to penetrate.

**Organic matter.** Plant and animal residue in the soil in

various stages of decomposition.

**Pan.** A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan*, *fragipan*, *claypan*, *plowpan*, and *traffic pan*.

**Parent material.** The unconsolidated organic and mineral material in which soil forms.

**Ped.** An individual natural soil aggregate, such as a granule, a prism, or a block.

**Pedon.** The smallest volume that can be called “a soil.” A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

**Percolation.** The downward movement of water through the soil.

**Percs slowly** (in tables). The slow movement of water through the soil, adversely affecting the specified use.

**Permeability.** The quality of the soil that enables water to move downward through the profile.

Permeability is measured as the number of inches per hour that water moves downward through the saturated soil. Terms describing permeability are:

Very slow .....	less than 0.06 inch
Slow .....	0.06 to 0.2 inch
Moderately slow .....	0.2 to 0.6 inch
Moderate .....	0.6 inch to 2.0 inches
Moderately rapid .....	2.0 to 6.0 inches
Rapid .....	6.0 to 20 inches
Very rapid .....	more than 20 inches

**Phase, soil.** A subdivision of a soil series based on features that affect its use and management. For example, slope, stoniness, and thickness.

**pH value.** A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

**Piping** (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

**Plasticity index.** The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

**Plastic limit.** The moisture content at which a soil changes from semisolid to plastic.

**Plateau.** An extensive upland mass with a relatively flat summit area that is considerably elevated (more than 100 meters) above adjacent lowlands and separated from them on one or more sides by escarpments.

**Playa.** The generally dry and nearly level lake plain that occupies the lowest parts of closed depressional

areas, such as those on intermontane basin floors. Temporary flooding occurs primarily in response to precipitation and runoff.

**Ponding.** Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

**Poor filter** (in tables). Because of rapid permeability or an impermeable layer near the surface, the soil may not adequately filter effluent from a waste disposal system.

**Poorly graded.** Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

**Potential native plant community.** The plant community on a given site that will be established if present environmental conditions continue to prevail and the site is properly managed. (See climax plant community.)

**Potential rooting depth (effective rooting depth).**

Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

**Prescribed burning.** The application of fire to land under such conditions of weather, soil moisture, and time of day as presumably will result in the intensity of heat and spread required to accomplish specific forest management, wildlife, grazing, or fire hazard reduction purposes.

**Productivity, soil.** The capability of a soil for producing a specified plant or sequence of plants under specific management.

**Profile, soil.** A vertical section of the soil extending through all its horizons and into the parent material.

**Proper grazing use.** Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This increases the vigor and reproduction of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

**Range condition.** The present composition of the plant community on a range site in relation to the potential natural plant community for that site. Range condition is expressed as excellent, good, fair, or poor on the basis of how much the present plant community has departed from the potential.

**Rangeland.** Land on which the potential natural

vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

**Range site.** An area of rangeland where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. A range site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other range sites in kind or proportion of species or total production.

**Reaction, soil.** A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are—

Extremely acid .....	below 4.5
Very strongly acid .....	4.5 to 5.0
Strongly acid .....	5.1 to 5.5
Medium acid .....	5.6 to 6.0
Slightly acid .....	6.1 to 6.5
Neutral .....	6.6 to 7.3
Mildly alkaline .....	7.4 to 7.8
Moderately alkaline .....	7.9 to 8.4
Strongly alkaline .....	8.5 to 9.0
Very strongly alkaline .....	9.1 and higher

**Regolith.** The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

**Relief.** The elevations or inequalities of a land surface, considered collectively.

**Residuum (residual soil material).** Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

**Rill.** A steep-sided channel resulting from accelerated erosion. A rill is generally a few inches deep and not wide enough to be an obstacle to farm machinery.

**Road cut.** A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

**Rock fragments.** Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

**Rooting depth** (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

**Root zone.** The part of the soil that can be penetrated by plant roots.

**Runoff.** The precipitation discharged into stream

channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

**Saline soil.** A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.

**Salty water** (in tables). Water that is too salty for consumption by livestock.

**Sand.** As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

**Sandstone.** Sedimentary rock containing dominantly sand-sized particles.

**Sapric soil material (muck).** The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

**Sedimentary rock.** Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

**Seepage** (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

**Series, soil.** A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer or of the underlying material. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

**Sheet erosion.** The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

**Shrink-swell.** The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

**Silica.** A combination of silicon and oxygen. The mineral form is called quartz.

**Silt.** As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil

that is 80 percent or more silt and less than 12 percent clay.

**Siltstone.** Sedimentary rock made up of dominantly silt-sized particles.

**Similar soils.** Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

**Site class.** A grouping of site indexes into 5 to 7 production capability levels. Each level can be represented by a site curve.

**Site index.** A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

**Slickensides.** Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

**Slick spot.** A small area of soil having a puddled, crusted, or smooth surface and an excess of exchangeable sodium. The soil is generally silty or clayey, is slippery when wet, and is low in productivity.

**Slope.** The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey the following slope classes are recognized:

Nearly level.....	0 to 2 percent
Gently sloping .....	2 to 4 percent
Moderately sloping .....	4 to 8 percent
Strongly sloping.....	8 to 20 percent
Moderately steep .....	20 to 30 percent
Steep .....	30 to 60 percent
Very steep .....	60 percent and higher

**Slope** (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

**Slow intake** (in tables). The slow movement of water into the soil.

**Slow refill** (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

**Small stones** (in tables). Rock fragments less than 3



inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

**Sodic soil.** A soil having so high a degree of alkalinity (pH 8.5 or higher), or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

**Soft bedrock.** Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

**Soil.** A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

**Soil separates.** Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand .....	2.0 to 1.0
Coarse sand .....	1.0 to 0.5
Medium sand .....	0.5 to 0.25
Fine sand .....	0.25 to 0.10
Very fine sand .....	0.10 to 0.05
Silt .....	0.05 to 0.002
Clay .....	less than 0.002

**Solum.** The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and plant and animal activities are largely confined to the solum.

**Stone line.** A concentration of coarse fragments in a soil. Generally, it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

**Stones.** Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 6 to 15 inches (15 to 38 centimeters) in length if flat.

**Stony.** Refers to a soil containing stones in numbers that interfere with or prevent tillage.

**Structure, soil.** The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with

rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

**Stubble mulch.** Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

**Subsoiling.** Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

**Talus.** Rock fragments of any size or shape, commonly coarse and angular, derived from and lying at the base of a cliff or very steep rock slope. The accumulated mass of such loose, broken rock formed chiefly by falling, rolling, or sliding.

**Taxadjuncts.** Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior.

**Terrace.** An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

**Terrace** (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

**Texture, soil.** The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand*, *loamy sand*, *sandy loam*, *loam*, *silt loam*, *silt*, *sandy clay loam*, *clay loam*, *silty clay loam*, *sandy clay*, *silty clay*, and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

**Thin layer** (in tables). Otherwise suitable soil material too thin for the specified use.

**Tilth, soil.** The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

**Toe slope.** The outermost inclined surface at the base of a hill; part of a foot slope.

**Topsoil.** The upper part of the soil, which is the most



favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

**Tuff.** A compacted deposit that is 50 percent or more volcanic ash and dust.

**Valley fill.** In glaciated regions, material deposited in stream valleys by glacial meltwater. In nonglaciated regions, alluvium deposited by heavily loaded streams.

**Variegation.** Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

**Water bars.** Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

**Weathering.** All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

**Well graded.** Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

**Wilting point (or permanent wilting point).** The moisture content of soil, on an oven-dry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

**Windthrow.** The action of uprooting and tipping over trees by the wind.



## Tables

TABLE 1.--TEMPERATURE AND PRECIPITATION

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have--		Average number of growing degree days*	Average	2 years in 10 will have--		Average number of days with 0.10 inch or more	Average snowfall
				Maximum temperature higher than--	Minimum temperature lower than--			Less than--	More than--		
(Recorded in the period 1951-81 at Grand View, Idaho)											
	°F	°F	°F	°F	°F	Units	In	In	In		In
January----	40.3	20.5	30.4	62	-8	69	0.79	0.33	1.16	3	4.0
February---	49.1	24.9	37.0	70	5	65	.50	.18	.76	2	1.0
March-----	57.8	28.3	43.1	76	10	136	.64	.24	.97	3	.4
April-----	67.3	35.2	51.3	87	19	344	.64	.22	.98	2	.1
May-----	76.8	43.6	60.2	97	27	626	.85	.23	1.35	3	.0
June-----	85.6	51.2	68.4	105	36	852	.91	.24	1.43	3	.0
July-----	95.3	56.2	75.8	108	41	1,110	.17	---	.31	1	.0
August-----	92.6	53.1	72.9	105	37	1,020	.25	---	.44	1	.0
September--	82.6	43.6	63.1	99	28	693	.49	---	.85	1	.0
October----	68.8	34.1	51.5	88	18	357	.46	.04	.77	2	.0
November---	52.5	26.6	39.6	70	7	84	.70	.31	1.03	3	.8
December---	42.3	21.8	32.1	64	-2	35	.70	.33	1.01	3	1.1
Yearly:											
Average--	67.6	36.6	52.1	---	---	---	---	---	---	---	---
Extreme--	---	---	---	108	-11	---	---	---	---	---	---
Total----	---	---	---	---	---	5,391	7.10	5.95	8.38	27	7.4

See footnote at end of table.

TABLE 1.--TEMPERATURE AND PRECIPITATION--Continued

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have--		Average number of growing degree days*	Average	2 years in 10 will have--		Average number of days with 0.10 inch or more	Average snowfall
				Maximum temperature higher than--	Minimum temperature lower than--			Less than--	More than--		
(Recorded in the period 1951-81 at Hill City, Idaho)											
	<u>°F</u>	<u>°F</u>	<u>°F</u>	<u>°F</u>	<u>°F</u>	<u>Units</u>	<u>In</u>	<u>In</u>	<u>In</u>		<u>In</u>
January----	29.4	6.6	18.0	46	-31	0	2.57	1.31	3.66	7	31.0
February---	34.1	9.8	22.0	48	-25	8	1.63	.66	2.44	5	15.4
March-----	39.7	15.8	27.8	56	-17	22	1.17	.48	1.74	4	12.2
April-----	53.6	27.5	40.6	75	9	117	.97	.29	1.52	3	1.5
May-----	65.9	34.7	50.3	84	20	325	1.13	.32	1.79	4	.4
June-----	74.7	39.9	57.3	93	24	519	1.14	.32	1.79	3	.0
July-----	86.6	44.8	65.7	98	29	797	.33	---	.58	1	.0
August-----	85.0	43.4	64.2	98	27	750	.46	---	.81	1	.0
September--	75.9	35.1	55.5	93	18	465	.65	---	1.12	2	.3
October----	62.5	26.6	44.6	82	8	176	.84	.17	1.36	3	1.1
November---	44.0	19.1	31.6	65	-10	26	1.73	.54	2.70	5	8.6
December---	32.8	10.2	21.5	49	-26	0	2.44	.90	3.73	7	33.3
Yearly:											
Average--	57.0	26.1	41.6	---	---	---	---	---	---	---	---
Extreme--	---	---	---	99	-34	---	---	---	---	---	---
Total----	---	---	---	---	---	3,205	15.06	12.03	17.90	45	103.8

See footnote at end of table.

TABLE 1.--TEMPERATURE AND PRECIPITATION--Continued

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have--		Average number of growing degree days*	Average	2 years in 10 will have--		Average number of days with 0.10 inch or more	Average snowfall
				Maximum temperature higher than--	Minimum temperature lower than--			Less than--	More than--		
(Recorded in the period 1951-81 at Mountain Home, Idaho)											
	°F	°F	°F	°F	°F	Units	In	In	In		In
January----	38.7	20.2	29.5	57	-7	45	1.50	0.67	2.20	5	6.7
February---	45.6	24.4	35.0	65	2	58	.79	.25	1.23	3	1.6
March-----	53.0	27.4	40.2	73	11	97	.92	.35	1.40	4	.8
April-----	62.6	33.5	48.1	83	18	260	.90	.22	1.44	3	.2
May-----	72.6	41.0	56.8	94	25	521	.85	.30	1.29	3	.0
June-----	82.8	49.0	65.9	102	32	777	.97	.25	1.55	3	.0
July-----	93.4	55.5	74.5	107	39	1,070	.30	---	.49	1	.0
August-----	91.1	53.1	72.1	105	36	995	.40	---	.68	1	.0
September--	81.4	44.1	62.8	99	28	684	.48	---	.82	1	.0
October----	67.8	34.5	51.2	88	18	356	.60	.04	1.02	2	.0
November---	51.0	27.0	39.0	71	7	82	1.19	.46	1.78	4	.8
December---	40.9	22.1	31.5	60	-2	23	1.37	.47	2.10	6	3.7
Yearly:											
Average--	65.1	36.0	50.6	---	---	---	---	---	---	---	---
Extreme--	---	---	---	108	-10	---	---	---	---	---	---
Total----	---	---	---	---	---	4,968	10.27	8.16	12.59	36	13.8

\* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degrees F).

TABLE 2.--FREEZE DATES IN SPRING AND FALL

Probability	Temperature		
	24° F or lower	28° F or lower	32° F or lower

(Recorded in the period 1951-81 at Grand View, Idaho)

Last freezing temperature in spring:			
1 year in 10 later than--	Apr. 23	May 15	May 26
2 years in 10 later than--	Apr. 18	May 9	May 20
5 years in 10 later than--	Apr. 9	Apr. 28	May 8
First freezing temperature in fall:			
1 year in 10 earlier than--	Oct. 5	Sept. 24	Sept. 9
2 years in 10 earlier than--	Oct. 10	Sept. 29	Sept. 15
5 years in 10 earlier than--	Oct. 5	Oct. 9	Sept. 25

(Recorded in the period 1951-81 at Hill City, Idaho)

Last freezing temperature in spring:			
1 year in 10 later than--	June 8	June 27	July 4
2 years in 10 later than--	May 31	June 19	June 30
5 years in 10 later than--	May 15	June 2	June 21
First freezing temperature in fall:			
1 year in 10 earlier than--	Sept. 5	July 31	July 1
2 years in 10 earlier than--	Sept. 10	Aug. 11	July 13
5 years in 10 earlier than--	Sept. 19	Aug. 31	Aug. 6

TABLE 2.--FREEZE DATES IN SPRING AND FALL--Continued

Probability	Temperature		
	24° F or lower	28° F or lower	32° F or lower
(Recorded in the period 1951-81 at Mountain Home, Idaho)			
Last freezing temperature in spring:			
1 year in 10 later than--	May 4	May 17	June 9
2 years in 10 later than--	Apr. 28	May 12	June 2
5 years in 10 later than--	Apr. 15	May 2	May 19
First freezing temperature in fall:			
1 year in 10 earlier than--	Oct. 4	Sept. 24	Sept. 10
2 years in 10 earlier than--	Oct. 10	Sept. 30	Sept. 15
5 years in 10 earlier than--	Oct. 21	Oct. 11	Sept. 25



TABLE 3.--GROWING SEASON

Probability	Daily minimum temperature		
	Higher than 24° F	Higher than 28° F	Higher than 32° F
	<u>Days</u>	<u>Days</u>	<u>Days</u>

(Recorded in the period 1951-81  
at Grand View, Idaho)

9 years in 10	174	142	114
8 years in 10	181	149	123
5 years in 10	194	163	140
2 years in 10	208	177	156
1 year in 10	215	185	165

(Recorded in the period 1951-81  
at Hill City, Idaho)

9 years in 10	98	46	5
8 years in 10	108	61	19
5 years in 10	126	89	45
2 years in 10	145	117	72
1 year in 10	155	132	86

(Recorded in the period 1951-81  
at Mountain Home, Idaho)

9 years in 10	162	137	102
8 years in 10	171	145	111
5 years in 10	188	162	129
2 years in 10	206	178	146
1 year in 10	215	187	155

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Ada	Elmore	Owyhee	Total--	
		County	County	County	Area	Extent
		Acres	Acres	Acres	Acres	Pct
1	Abgese loamy sand, 2 to 8 percent slopes-----	0	0	11,303	11,303	0.4
2	Abgese loamy sand, 8 to 40 percent slopes-----	0	135	13,839	13,974	0.5
3	Abgese sandy loam, 0 to 4 percent slopes-----	0	720	92	812	*
4	Arbidge fine sandy loam, 1 to 4 percent slopes-----	0	781	988	1,769	0.1
5	Arbidge-Buko complex, 1 to 8 percent slopes-----	0	1,333	16,490	17,823	0.7
6	Badge-Immiant-Rubble land complex, 20 to 70 percent slopes-----	0	49,151	0	49,151	1.9
7	Bahem silt loam, 0 to 4 percent slopes-----	0	14,358	483	14,841	0.6
8	Bahem silt loam, 4 to 8 percent slopes-----	0	1,226	237	1,463	0.1
9	Bahem-Minidoka-Trevino complex, 0 to 4 percent slopes-----	7,145	6,410	15	13,570	0.5
10	Baldock loam, 0 to 2 percent slopes-----	0	1,497	1,089	2,586	0.1
11	Bram silt loam, 0 to 2 percent slopes-----	0	1,009	6,774	7,783	0.3
12	Bramwell silty clay loam, 0 to 1 percent slopes-----	0	928	3,740	4,668	0.2
13	Brinegar loam, 0 to 4 percent slopes-----	0	6,675	0	6,675	0.3
14	Broad Canyon-Coski complex, 30 to 60 percent slopes---	0	13,400	0	13,400	0.5
15	Broad Canyon-Grousecreek association, 20 to 70 percent slopes-----	0	38,776	0	38,776	1.5
16	Broad Canyon-Switchback association, 30 to 70 percent slopes-----	0	23,155	0	23,155	0.9
17	Brownlee loam, 2 to 12 percent slopes-----	0	3,551	0	3,551	0.1
18	Brownlee-Immiant complex, 2 to 20 percent slopes-----	0	11,776	0	11,776	0.5
19	Brownlee-Van Dusen loams, 2 to 20 percent slopes-----	0	5,565	0	5,565	0.2
20	Bruncan-Troughs complex, 0 to 5 percent slopes-----	0	0	1,920	1,920	0.1
21	Buko fine sandy loam, 1 to 4 percent slopes-----	0	4,781	6,265	11,046	0.4
22	Buko fine sandy loam, 4 to 12 percent slopes-----	0	1,819	5,383	7,202	0.3
23	Chardoton silt loam, 0 to 4 percent slopes-----	1,998	691	0	2,689	0.1
24	Chilcott silt loam, 0 to 4 percent slopes-----	0	7,518	40	7,558	0.3
25	Chilcott very stony silty clay loam, 0 to 12 percent slopes-----	0	5,819	0	5,819	0.2
26	Chilcott-Day-Rock outcrop complex, 2 to 15 percent slopes-----	0	3,338	0	3,338	0.1
27	Chilcott-Elijah silt loams, 0 to 12 percent slopes----	691	43,655	8,246	52,592	2.0
28	Chilcott-Kunaton-Chardoton complex, 2 to 12 percent slopes-----	20,659	11,487	160	32,306	1.2
29	Chilcott-Power complex, 0 to 8 percent slopes-----	0	9,447	0	9,447	0.4
30	Cinder land-----	429	179	0	608	*
31	Colthorp stony silt loam, 0 to 8 percent slopes-----	0	12,212	6,334	18,546	0.7
32	Colthorp-Chilcott silt loams, 0 to 8 percent slopes----	0	2,672	6,959	9,631	0.4
33	Colthorp-Kunaton complex, 0 to 8 percent slopes-----	2,847	61,399	1,058	65,304	2.5
34	Colthorp-Kunaton-Rubble land complex, 8 to 20 percent slopes-----	0	8,274	0	8,274	0.3
35	Colthorp-Minveno stony silt loams, 0 to 8 percent slopes-----	449	23,787	15,906	40,142	1.5
36	Colthorp-Rock outcrop complex, 4 to 20 percent slopes-----	0	942	5,260	6,202	0.2
37	Coski-Broad Canyon complex, 15 to 60 percent slopes----	0	6,160	0	6,160	0.2
38	Cottle-Sidlake complex, 4 to 30 percent slopes-----	0	3,091	6,707	9,798	0.4
39	Cottle-Trevino-Rock outcrop complex, 8 to 30 percent slopes-----	0	28	5,891	5,919	0.2
40	Cottle-Willhill complex, 2 to 25 percent slopes-----	0	0	8,079	8,079	0.3
41	Cowgil extremely stony sandy loam, 4 to 20 percent slopes-----	0	2,237	0	2,237	0.1
42	Cowgil extremely stony fine sandy loam, 0 to 4 percent slopes-----	0	532	0	532	*
43	Cowgil-Rubble land-Rock outcrop association, 25 to 50 percent slopes-----	0	0	2,170	2,170	0.1
44	Davey loamy sand, 4 to 12 percent slopes-----	0	2,524	2,483	5,007	0.2
45	Davey loamy fine sand, 0 to 4 percent slopes-----	0	2,693	4,199	6,892	0.3
46	Davey-Buko complex, 1 to 12 percent slopes-----	0	564	3,045	3,609	0.1
47	Davey-Mazuma complex, 12 to 40 percent slopes-----	0	154	15,711	15,865	0.6
48	Davey-Quincy complex, 1 to 12 percent slopes-----	0	5,993	7,824	13,817	0.5
49	Davey-Vanderhoff complex, 1 to 4 percent slopes-----	0	0	912	912	*
50	Dors fine sandy loam, 0 to 4 percent slopes-----	0	1,523	8,914	10,437	0.4
51	Dors gravelly fine sandy loam, 4 to 12 percent slopes-----	0	554	6,584	7,138	0.3

See footnote at end of table.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Ada County	Elmore County	Owyhee County	Total--	
					Area	Extent
		Acres	Acres	Acres	Acres	Pct
52	Dors-Loray complex, 0 to 4 percent slopes-----	0	338	1,424	1,762	0.1
53	Dune land-----	0	0	2,570	2,570	0.1
54	Elijah silt loam, 0 to 4 percent slopes-----	0	9,738	621	10,359	0.4
55	Elijah silt loam, 4 to 12 percent slopes-----	0	807	926	1,733	0.1
56	Elijah-Purdum silt loams, 0 to 8 percent slopes-----	2,495	19,212	20,233	41,940	1.6
57	Elkcreek-Demast complex, 10 to 50 percent slopes-----	0	21,273	0	21,273	0.8
58	Elkcreek-Gaib-Simonton complex, 12 to 30 percent slopes-----	0	10,381	2,242	12,623	0.5
59	Farrot-Haw complex, 20 to 50 percent slopes-----	0	7,489	0	7,489	0.3
60	Fluvaquents, channeled-----	0	0	2,145	2,145	0.1
61	Gaib-Rubble land complex, 40 to 80 percent slopes-----	0	19,208	0	19,208	0.7
62	Gaib-Elkcreek-Rock outcrop association, 2 to 20 percent slopes-----	0	19,481	0	19,481	0.8
63	Gaib-Elkcreek-Simonton association, 20 to 60 percent slopes-----	0	21,427	0	21,427	0.8
64	Gaib-Simonton-Rock outcrop association, 2 to 12 percent slopes-----	0	2,819	0	2,819	0.1
65	Garbutt silt loam, 0 to 4 percent slopes-----	0	1,506	10,282	11,788	0.5
66	Garbutt silt loam, 4 to 8 percent slopes-----	0	91	1,721	1,812	0.1
67	Garbutt-Weso complex, 0 to 2 percent slopes-----	4,159	5,019	1,174	10,352	0.4
68	Garbutt-Weso-Trevino complex, 2 to 8 percent slopes---	8,573	17,648	7	26,228	1.0
69	Garbutt-Trevino association, 4 to 20 percent slopes---	0	4,095	360	4,455	0.2
70	Grandview loam, 0 to 4 percent slopes-----	0	2,029	3,258	5,287	0.2
71	Grandview, drained-Garbutt silt loams, 0 to 4 percent slopes-----	0	353	4,184	4,537	0.2
72	Graylock-Broad Canyon complex, 40 to 70 percent slopes	0	6,440	0	6,440	0.2
73	Greenleaf very fine sandy loam, 0 to 4 percent slopes---	0	24	1,433	1,457	0.1
74	Greenleaf-Shano complex, 4 to 12 percent slopes-----	0	1,697	590	2,287	0.1
75	Haplaquolls-Xerofluvents complex, 0 to 2 percent slopes-----	0	10,139	0	10,139	0.4
76	Harahill-Willho association, 0 to 12 percent slopes---	0	12,309	0	12,309	0.5
77	Haw-Farrot complex, 4 to 20 percent slopes-----	0	3,069	0	3,069	0.1
78	Haw-Lankbush complex, 4 to 20 percent slopes-----	0	8,481	0	8,481	0.3
79	Hawsley loamy sand, 0 to 12 percent slopes-----	0	682	15,424	16,106	0.6
80	Hotcreek-Troughs association, 1 to 15 percent slopes---	0	0	5,201	5,201	0.2
81	Houk silty clay loam, 0 to 2 percent slopes-----	0	3,655	0	3,655	0.1
82	Immiant gravelly loam, 0 to 12 percent slopes-----	0	1,408	0	1,408	0.1
83	Immiant-Ruckles-Rock outcrop complex, 4 to 20 percent slopes-----	0	12,381	0	12,381	0.5
84	Jacquith loamy sand, 4 to 12 percent slopes-----	0	510	538	1,048	*
85	Jacquith loamy fine sand, 1 to 8 percent slopes-----	0	520	1,798	2,318	0.1
86	Jacquith-Quincy loamy sands, 0 to 12 percent slopes---	0	1,480	4,887	6,367	0.2
87	Karcas-Day-Rock outcrop complex, 2 to 15 percent slopes-----	0	8,888	0	8,888	0.3
88	Kunaton silt loam, 0 to 4 percent slopes-----	640	7,851	0	8,491	0.3
89	Kunaton-Chilcott silt loams, 2 to 12 percent slopes---	0	20,580	0	20,580	0.8
90	Lankbush sandy loam, 0 to 4 percent slopes-----	0	1,802	68	1,870	0.1
91	Lankbush-Lanktree complex, 4 to 30 percent slopes---	0	6,536	0	6,536	0.3
92	Lankbush-Jenness association, 0 to 4 percent slopes---	247	25,437	91	25,775	1.0
93	Lanktree loam, 0 to 4 percent slopes-----	0	479	0	479	*
94	Lanktree-Chilcott loams, 0 to 12 percent slopes-----	0	28,439	470	28,909	1.1
95	Letha fine sandy loam, drained, 0 to 4 percent slopes---	0	3,515	431	3,946	0.2
96	Letha loam, 0 to 2 percent slopes-----	0	627	2,143	2,770	0.1
97	Letha-Baldock loams, 0 to 2 percent slopes-----	0	641	878	1,519	0.1
98	Loray gravelly fine sandy loam, 0 to 12 percent slopes	0	1,027	7,779	8,806	0.3
99	Loray-Dors complex, 8 to 20 percent slopes-----	0	100	5,655	5,755	0.2
100	Mazuma fine sandy loam, 0 to 4 percent slopes-----	0	4,694	24,349	29,043	1.1
101	Mazuma-Hawsley complex, 0 to 12 percent slopes-----	0	1,382	19,030	20,412	0.8
102	McKeeth gravelly loam, 2 to 12 percent slopes-----	0	0	8,904	8,904	0.3
103	Minidoka-Minveno silt loams, 0 to 4 percent slopes---	0	20,882	6,710	27,592	1.1
104	Minidoka-Minveno silt loams, 4 to 8 percent slopes---	0	277	10	287	*
105	Minveno silt loam, 0 to 4 percent slopes-----	0	8,539	9,702	18,241	0.7
106	Minveno silt loam, 4 to 8 percent slopes-----	0	180	4,223	4,403	0.2

See footnote at end of table.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Ada County	Elmore County	Owyhee County	Total--	
					Area	Extent
		Acres	Acres	Acres	Acres	Pct
107	Minveno-Minidoka stony silt loams, 0 to 8 percent slopes-----	0	3,474	391	3,865	0.1
108	Monroe-Jenness complex, 0 to 2 percent slopes-----	0	4,533	29	4,562	0.2
109	Monroe-Goose Creek association, 0 to 2 percent slopes-----	0	5,023	478	5,501	0.2
110	Moran-Teewinot-Coski complex, 10 to 50 percent slopes-----	0	4,840	0	4,840	0.2
111	Oland gravelly loam, 2 to 20 percent slopes-----	0	1,640	0	1,640	0.1
112	Ornea gravelly loam, 2 to 8 percent slopes-----	0	315	16,288	16,603	0.6
113	Owsel-Purdam complex, 1 to 12 percent slopes-----	0	16,462	40,119	56,581	2.2
114	Perazzo-Ornea-Abgese complex, 12 to 40 percent slopes-----	0	35	21,708	21,743	0.8
115	Pits, gravel-----	0	251	73	324	*
116	Power silt loam, 1 to 4 percent slopes-----	2,417	9,330	725	12,472	0.5
117	Power-Chardoton complex, 0 to 4 percent slopes-----	5,499	6,325	0	11,824	0.5
118	Power-Jenness complex, 0 to 2 percent slopes-----	0	6,968	0	6,968	0.3
119	Power-Purdam silt loams, 0 to 1 percent slopes-----	158	1,168	0	1,326	0.1
120	Purdam silt loam, 0 to 4 percent slopes-----	3,706	8,997	93,312	106,015	4.1
121	Purdam silt loam, 4 to 8 percent slopes-----	0	5,103	3,615	8,718	0.3
122	Purdam-Sebree-Owsel complex, 0 to 8 percent slopes-----	0	0	35,744	35,744	1.4
123	Quartzburg-Wagontown complex, 35 to 70 percent slopes-----	0	31,928	0	31,928	1.2
124	Quincy fine sand, 0 to 12 percent slopes-----	0	852	6,520	7,372	0.3
125	Quincy loamy fine sand, 12 to 30 percent slopes-----	0	740	4,708	5,448	0.2
126	Rainey-Brownlee association, 10 to 50 percent slopes-----	0	9,373	1,228	10,601	0.4
127	Rainey-Schoolhouse-Oland association, 30 to 70 percent slopes-----	0	100,606	0	100,606	3.9
128	Rainey-Van Dusen association, 10 to 30 percent slopes-----	0	676	0	676	*
129	Rainey-Van Dusen-Schoolhouse association, 30 to 60 percent slopes-----	0	23,311	0	23,311	0.9
130	Roanhide-Bauscher association, 10 to 30 percent slopes-----	0	22,305	0	22,305	0.9
131	Roanhide-Bauscher-Schoolhouse association, 10 to 60 percent slopes-----	0	105,402	3,300	108,702	4.2
132	Rock outcrop-Rubble land association-----	0	20,404	11,319	31,723	1.2
133	Royal fine sandy loam, 0 to 4 percent slopes-----	0	12,926	8,905	21,831	0.8
134	Royal fine sandy loam, 4 to 12 percent slopes-----	0	11,197	22,704	33,901	1.3
135	Royal-Davey complex, 0 to 12 percent slopes-----	0	2,900	12,624	15,524	0.6
136	Royal-Davey complex, 12 to 40 percent slopes-----	0	5,327	20,263	25,590	1.0
137	Royal-Shano-Rock outcrop complex, 0 to 20 percent slopes-----	0	7,624	3,017	10,641	0.4
138	Royal-Truesdale fine sandy loams, 0 to 4 percent slopes-----	0	8,509	658	9,167	0.4
139	Ruckles extremely stony loam, 1 to 8 percent slopes-----	0	7,809	802	8,611	0.3
140	Schoolhouse-Rock outcrop complex, 40 to 90 percent slopes-----	0	1,095	0	1,095	*
141	Scism silt loam, 0 to 4 percent slopes-----	0	8,153	10,981	19,134	0.7
142	Scoon very fine sandy loam, 0 to 4 percent slopes-----	0	6,426	6,364	12,790	0.5
143	Shano loam, 1 to 12 percent slopes-----	0	2,625	4,524	7,149	0.3
144	Shano-Owsel complex, 0 to 12 percent slopes-----	0	4,045	27,806	31,851	1.2
145	Shano-Truesdale fine sandy loams, 0 to 12 percent slopes-----	0	19,653	21,721	41,374	1.6
146	Shoofly loam, 0 to 4 percent slopes-----	0	0	17,023	17,023	0.7
147	Shoofly-Ornea complex, 2 to 12 percent slopes-----	0	0	27,974	27,974	1.1
148	Sidlake-Bruncan complex, 1 to 8 percent slopes-----	0	9	9,510	9,519	0.4
149	Simonton loam, 2 to 12 percent slopes-----	0	16,033	0	16,033	0.6
150	Simonton-Bauscher loams, 2 to 20 percent slopes-----	0	28,373	479	28,852	1.1
151	Simonton-Elkcreek complex, 10 to 50 percent slopes-----	0	12,391	0	12,391	0.5
152	Stavely-Coski-Switchback complex, 10 to 60 percent slopes-----	0	13,410	0	13,410	0.5
153	Switchback-Grousecreek complex, 20 to 60 percent slopes-----	0	9,170	0	9,170	0.4
154	Timmerman loamy sand, 2 to 20 percent slopes, extremely bouldery-----	0	1,156	475	1,631	0.1
155	Timmerman sandy loam, 0 to 4 percent slopes-----	0	3,591	399	3,990	0.2
156	Timmerman sandy loam, 4 to 12 percent slopes-----	0	2,401	169	2,570	0.1
157	Trevino-Garbutt-Weso complex, 2 to 8 percent slopes-----	15,291	15,271	165	30,727	1.2
158	Trevino-Minidoka complex, 8 to 30 percent slopes-----	5,019	718	2,879	8,616	0.3

See footnote at end of table.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Ada County	Elmore County	Owyhee County	Total--	
					Area	Extent
		<u>Acres</u>	<u>Acres</u>	<u>Acres</u>	<u>Acres</u>	<u>Pct</u>
159	Trevino-Rock outcrop complex, 0 to 8 percent slopes---	9,972	1,001	392	11,365	0.4
160	Trosi-Chilcott-Tenmile gravelly loams, 2 to 20 percent slopes-----	0	11,772	0	11,772	0.5
161	Truesdale fine sandy loam, 0 to 4 percent slopes-----	303	17,817	8,327	26,447	1.0
162	Truesdale fine sandy loam, 4 to 12 percent slopes-----	53	7,874	3,786	11,713	0.5
163	Typic Torriorthents, 4 to 20 percent slopes-----	0	2,004	36,137	38,141	1.5
164	Typic Torriorthents-Badland complex, 20 to 70 percent slopes-----	0	41	53,209	53,250	2.1
165	Typic Torriorthents-Rubble land complex, 20 to 70 percent slopes-----	130	4,920	9,454	14,504	0.6
166	Urban land-----	0	2,350	0	2,350	0.1
167	Vanderhoff fine sandy loam, 0 to 4 percent slopes-----	0	1,322	2,419	3,741	0.1
168	Vanderhoff fine sandy loam, 4 to 12 percent slopes-----	0	384	3,372	3,756	0.1
169	Vanderhoff-Buko-Loray complex, 2 to 20 percent slopes-	0	883	15,680	16,563	0.6
170	Vining very stony fine sandy loam, 0 to 8 percent slopes-----	0	711	1,365	2,076	0.1
171	Willhill-Cottle association, 2 to 25 percent slopes---	0	0	8,302	8,302	0.3
172	Xeric Torriorthents-Xerollic Camborthids complex, 20 to 70 percent slopes-----	0	16,581	26,069	42,650	1.6
173	Xeric Torriorthents and Xerollic Camborthids, 8 to 20 percent slopes-----	0	41,323	35,289	76,612	3.0
174	Yutruue very stony silty clay, 0 to 12 percent slopes--	0	8,190	879	9,069	0.4
	Water-----	0	12,130	4,870	17,000	0.7
	Total-----	92,880	1,492,280	1,005,110	2,590,270	100.0

\* Less than 0.1 percent.

TABLE 5.--YIELDS PER ACRE OF IRRIGATED CROPS AND PASTURE

(Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil. Only the soils suited to irrigated crops and pasture are listed)

Soil name and map symbol	Barley	Dry beans	Alfalfa hay	Corn	Wheat	Sugar beets	Irish potatoes	Pasture
	<u>Bu</u>	<u>Bu</u>	<u>Tons</u>	<u>Bu</u>	<u>Bu</u>	<u>Tons</u>	<u>Cwt</u>	<u>AUM*</u>
1----- Abgese	110	35	5.0	150	90	25	375	10
3----- Abgese	115	40	6.0	180	100	30	400	14
4----- Arbidqe	100	30	5.0	130	85	25	340	10
7----- Bahem	130	40	7.0	150	105	28	380	13
8----- Bahem	120	35	6.0	120	95	24	325	12
9----- Bahem-Minidoka-Trevino	---	---	6.0	---	92	---	---	16
10----- Baldock	100	25	4.0	160	85	23	300	12
11----- Bram	90	20	2.5	70	70	18	275	6
12----- Bramwell	95	25	5.0	85	90	22	300	12
21----- Buko	94	33	5.0	130	90	25	325	13
23----- Chardoton	80	23	4.0	95	75	20	250	8
24----- Chilcott	85	22	4.0	75	70	18	250	10
27----- Chilcott-Elijah	85	22	3.8	70	70	18	250	10
29----- Chilcott-Power	90	25	4.1	75	74	20	275	11
32----- Colthorp-Chilcott	80	18	3.7	90	65	18	225	7
33----- Colthorp-Kunaton	75	17	3.0	90	65	18	225	7
41, 42----- Cowgil	85	20	5.0	95	70	18	200	12
44----- Davey	100	25	4.0	110	80	22	300	9
45----- Davey	110	35	5.0	150	100	25	350	12

See footnotes at end of table.

TABLE 5.--YIELDS PER ACRE OF IRRIGATED CROPS AND PASTURE--Continued

Soil name and map symbol	Barley	Dry beans	Alfalfa hay	Corn	Wheat	Sugar beets	Irish potatoes	Pasture
	<u>Bu</u>	<u>Bu</u>	<u>Tons</u>	<u>Bu</u>	<u>Bu</u>	<u>Tons</u>	<u>Cwt</u>	<u>AUM*</u>
46----- Davey-Buko	100	25	4.0	130	90	24	325	10
48----- Davey-Quincy	90	25	4.0	110	90	24	300	9
49----- Davey-Vanderhoff	85	20	3.5	100	85	20	275	8
50----- Dors	85	23	3.5	95	65	18	225	7
51----- Dors	85	23	3.5	95	65	18	225	7
52----- Dors-Loray	80	20	3.0	90	60	18	200	7
54----- Elijah	105	30	5.0	100	85	25	325	10
55----- Elijah	---	---	3.5	65	---	---	---	10
56----- Elijah-Furdam	105	30	4.0	100	90	24	325	10
64**: Gaib.								
Simonton----- Rock outcrop.	75	---	3.7	---	60	---	---	10
65----- Garbutt	120	35	7.0	150	110	30	385	14
66----- Garbutt	110	30	6.0	130	90	25	350	14
70----- Grandview	90	25	4.5	100	80	25	300	10
71----- Grandview-Garbutt	100	30	5.0	110	90	25	325	12
73----- Greenleaf	110	30	6.0	140	90	30	370	12
74----- Greenleaf-Shano	110	35	6.0	150	100	30	380	14
79----- Hawsley	100	25	4.0	120	80	22	275	10
81----- Houk	60	---	3.0	---	50	---	---	5
84, 85----- Jacquith	105	30	4.5	130	85	25	325	10

See footnotes at end of table.

TABLE 5.--YIELDS PER ACRE OF IRRIGATED CROPS AND PASTURE--Continued

Soil name and map symbol	Barley	Dry beans	Alfalfa hay	Corn	Wheat	Sugar beets	Irish potatoes	Pasture
	<u>Bu</u>	<u>Bu</u>	<u>Tons</u>	<u>Bu</u>	<u>Bu</u>	<u>Tons</u>	<u>Cwt</u>	<u>AUM*</u>
90----- Lankbush	130	40	8.0	180	110	30	400	14
92**: Lankbush-----	130	40	8.0	180	110	30	400	14
Jenness-----	120	40	8.0	180	110	30	400	14
95----- Letha	110	---	5.0	200	100	---	250	13
96----- Letha	---	---	---	65	---	20	---	13
97----- Letha-Baldock	90	25	4.0	100	80	21	275	10
98----- Loray	85	23	3.5	95	65	18	225	7
100----- Mazuma	90	25	4.0	100	80	25	275	10
101----- Mazuma-Hawsley	95	25	4.5	100	80	25	275	10
102----- McKeeth	85	23	3.5	95	65	18	250	7
103----- Minidoka-Minveno	90	30	5.0	130	90	25	300	10
104----- Minidoka-Minveno	85	25	4.5	130	90	20	275	10
105----- Minveno	80	25	5.0	120	90	20	275	10
106----- Minveno	75	23	4.5	110	85	20	275	10
107----- Minveno-Minidoka	75	23	4.0	100	85	20	275	10
109**: Monroe-----	110	30	5.0	150	100	25	325	12
Goose Creek-----	90	25	5.0	120	100	25	275	12
112----- Ornea	85	23	3.5	95	65	18	225	7
113----- Owsel-Purdam	110	35	5.0	150	90	25	350	12
116----- Power	135	40	7.0	160	110	28	425	18
117----- Power-Chardoton	120	35	6.0	150	100	25	400	14

See footnotes at end of table.



TABLE 5.--YIELDS PER ACRE OF IRRIGATED CROPS AND PASTURE--Continued

Soil name and map symbol	Barley	Dry beans	Alfalfa hay	Corn	Wheat	Sugar beets	Irish potatoes	Pasture
	<u>Bu</u>	<u>Bu</u>	<u>Tons</u>	<u>Bu</u>	<u>Bu</u>	<u>Tons</u>	<u>Cwt</u>	<u>AUM*</u>
118----- Power-Jenness	135	40	8.0	180	115	30	450	15
119----- Power-Purdam	125	35	7.0	150	100	30	375	14
120----- Purdam	105	30	6.0	120	100	25	315	15
121----- Purdam	100	25	5.0	100	80	20	300	13
122----- Purdam-Sebree-Owsel	95	25	4.0	100	80	20	275	10
124----- Quincy	105	30	5.0	120	85	25	360	13
133----- Royal	130	40	8.0	200	120	30	400	14
134----- Royal	120	35	5.0	180	110	25	350	10
135----- Royal-Davey	110	35	6.0	170	110	25	350	13
138----- Royal-Truesdale	120	35	6.0	135	100	26	350	13
141----- Scism	120	35	6.0	140	110	28	375	15
142----- Scoon	80	24	4.0	100	85	20	275	8
143----- Shano	120	35	7.0	160	100	28	375	14
144----- Shano-Owsel	110	35	7.0	170	110	30	400	14
145----- Shano-Truesdale	100	30	6.0	150	100	25	375	12
149----- Simonton	75	---	3.5	---	60	---	---	12
154, 155, 156----- Timmerman	100	30	6.0	120	90	25	350	14
158----- Trevino-Minidoka	---	---	2.0	---	---	---	---	6
161----- Truesdale	105	30	5.5	110	95	26	350	12
162----- Truesdale	100	25	4.0	100	80	25	300	10

See footnotes at end of table.

TABLE 5.--YIELDS PER ACRE OF IRRIGATED CROPS AND PASTURE--Continued

Soil name and map symbol	Barley	Dry beans	Alfalfa hay	Corn	Wheat	Sugar beets	Irish potatoes	Pasture
	<u>Bu</u>	<u>Bu</u>	<u>Tons</u>	<u>Bu</u>	<u>Bu</u>	<u>Tons</u>	<u>Cwt</u>	<u>AUM*</u>
163----- Typic Torriorthents	85	20	3.5	95	65	18	225	7
167----- Vanderhoff	100	30	5.0	120	75	22	300	12
168----- Vanderhoff	95	25	4.0	100	70	20	275	10

\* Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

\*\* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES

(Only the soils that support rangeland vegetation suitable for grazing are listed)

Soil name and map symbol	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight lb/acre		
1, 2, 3----- Abgese	011xy014i, Sandy Loam 8-12" Ppt, Artrw/orhy.	Favorable Normal Unfavorable	900 600 350	Wyoming big sagebrush----- Indian ricegrass----- Thurber needlegrass----- Bottlebrush squirreltail-----	35 20 15 5
4----- Arbidge	011xy014i, Sandy Loam 8-12" Ppt, Artrw/orhy.	Favorable Normal Unfavorable	1,000 600 350	Wyoming big sagebrush----- Indian ricegrass----- Thurber needlegrass----- Bottlebrush squirreltail----- Sandberg bluegrass-----	35 20 15 5 5
5*: Arbidge-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 300	Wyoming big sagebrush----- Thurber needlegrass----- Bottlebrush squirreltail----- Sandberg bluegrass----- Rabbitbrush-----	35 30 5 5 5
Buko-----	011xy014i, Sandy Loam 8-12" Ppt, Artrw/orhy.	Favorable Normal Unfavorable	1,000 600 350	Wyoming big sagebrush----- Indian ricegrass----- Thurber needlegrass----- Bottlebrush squirreltail----- Sandberg bluegrass-----	35 20 15 5 5
6*: Badge-----	010ay019i, Loamy 12-16" Ppt, Artrv/agsp.	Favorable Normal Unfavorable	1,100 900 750	Bluebunch wheatgrass----- Mountain big sagebrush----- Thurber needlegrass----- Western needlegrass----- Idaho fescue----- Arrowleaf balsamroot----- Lupine----- Antelope bitterbrush-----	25 20 10 10 5 5 5 5
Immiant-----	010ay019i, Loamy 12-16" Ppt, Artrv/agsp.	Favorable Normal Unfavorable	1,100 900 750	Bluebunch wheatgrass----- Mountain big sagebrush----- Thurber needlegrass----- Western needlegrass----- Idaho fescue----- Arrowleaf balsamroot----- Lupine----- Antelope bitterbrush-----	25 20 10 10 5 5 5 5
Rubble land.					
7, 8----- Bahem	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 300	Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Rabbitbrush-----	35 30 5 5 5
9*: Bahem-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 300	Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Rabbitbrush-----	35 30 5 5 5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight Lb/acre		
9*: Minidoka-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable	700	Wyoming big sagebrush-----	35
		Normal	500	Thurber needlegrass-----	30
		Unfavorable	300	Bottlebrush squirreltail-----	5
				Sandberg bluegrass-----	5
				Rabbitbrush-----	5
Trevino-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable	700	Wyoming big sagebrush-----	35
		Normal	500	Thurber needlegrass-----	30
		Unfavorable	300	Sandberg bluegrass-----	5
				Bottlebrush squirreltail-----	5
				Rabbitbrush-----	5
10----- Baldock	011ay007i, Semiwet Saline Meadow, Save4/dist.	Favorable	2,000	Inland saltgrass-----	25
		Normal	1,300	Alkali bluegrass-----	15
		Unfavorable	900	Alkali sacaton-----	15
				Basin wildrye-----	10
				Sedge-----	5
				Black greasewood-----	5
13----- Brinegar	010ay028i, Semiwet Meadow-----	Favorable	4,000	Slender wheatgrass-----	20
		Normal	2,250	Sedge-----	20
		Unfavorable	1,600	Tufted hairgrass-----	10
				Basin wildrye-----	5
				Mountain brome-----	5
				Western wheatgrass-----	5
				Streambank wheatgrass-----	5
				Shrubby cinquefoil-----	5
17----- Brownlee	010ay019i, Loamy 12-16" Ppt, Artrv/agsp.	Favorable	1,100	Bluebunch wheatgrass-----	25
		Normal	900	Mountain big sagebrush-----	20
		Unfavorable	750	Thurber needlegrass-----	10
				Oregon princesplume-----	10
				Idaho fescue-----	5
				Arrowleaf balsamroot-----	5
				Lupine-----	5
				Antelope bitterbrush-----	5
18*: Brownlee-----	010ay019i, Loamy 12-16" Ppt, Artrv/agsp.	Favorable	1,100	Bluebunch wheatgrass-----	25
		Normal	900	Mountain big sagebrush-----	20
		Unfavorable	750	Thurber needlegrass-----	10
				Oregon princesplume-----	10
				Idaho fescue-----	5
				Arrowleaf balsamroot-----	5
				Lupine-----	5
				Antelope bitterbrush-----	5
Immiant-----	010ay019i, Loamy 12-16" Ppt, Artrv/agsp.	Favorable	1,100	Bluebunch wheatgrass-----	25
		Normal	900	Mountain big sagebrush-----	20
		Unfavorable	750	Thurber needlegrass-----	10
				Western needlegrass-----	10
				Idaho fescue-----	5
				Arrowleaf balsamroot-----	5
				Lupine-----	5
				Antelope bitterbrush-----	5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight Lb/acre		
19*: Brownlee-----	010ay019i, Loamy 12-16" Ppt, Artrv/agsp.	Favorable Normal Unfavorable	1,100 900 750	Bluebunch wheatgrass----- Mountain big sagebrush----- Thurber needlegrass----- Oregon princesplume----- Idaho fescue----- Arrowleaf balsamroot----- Lupine----- Antelope bitterbrush-----	25 20 10 10 5 5 5 5
Van Dusen-----	010ay019i, Loamy 12-16" Ppt, Artrv/agsp.	Favorable Normal Unfavorable	1,100 900 750	Bluebunch wheatgrass----- Mountain big sagebrush----- Western needlegrass----- Thurber needlegrass----- Idaho fescue----- Arrowleaf balsamroot----- Lupine----- Antelope bitterbrush-----	25 20 10 10 5 5 5 5
20*: Bruncan-----	025xy040i, Shallow Stony 8-12" Ppt, Ararn/stth2.	Favorable Normal Unfavorable	700 350 200	Thurber needlegrass----- Black sagebrush----- Bottlebrush squirreltail----- Arrowleaf balsamroot----- Bluebunch wheatgrass----- Sandberg bluegrass----- Spiny hopsage----- Phlox-----	20 20 15 6 5 5 5 5
Troughs-----	025xy040i, Shallow Stony 8-12" Ppt, Ararn/stth2.	Favorable Normal Unfavorable	700 350 200	Thurber needlegrass----- Black sagebrush----- Bottlebrush squirreltail----- Sandberg bluegrass----- Bluebunch wheatgrass----- Phlox----- Spiny hopsage----- Arrowleaf balsamroot-----	20 20 15 5 5 5 5 5
21, 22----- Buko	011xy014i, Sandy Loam 8-12" Ppt, Artrw/orhy.	Favorable Normal Unfavorable	1,000 600 350	Wyoming big sagebrush----- Indian ricegrass----- Thurber needlegrass----- Bottlebrush squirreltail----- Sandberg bluegrass-----	35 20 15 5 5
23----- Chardoton	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 300	Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Rabbitbrush-----	35 30 5 5 5
24----- Chilcott	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 300	Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Rabbitbrush----- Bottlebrush squirreltail-----	35 30 5 5 5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight Lb/acre		Pct
25----- Chilcott	011xy001i, Loamy 10-12" Ppt, Artrw/agsp.	Favorable Normal Unfavorable	1,100 750 400	Bluebunch wheatgrass----- Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Arrowleaf balsamroot-----	25 25 15 5 5 5
26*: Chilcott-----	011xy001i, Loamy 10-12" Ppt, Artrw/agsp.	Favorable Normal Unfavorable	1,100 750 400	Bluebunch wheatgrass----- Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Arrowleaf balsamroot-----	25 25 15 5 5 5
Day-----	011xy001i, Loamy 10-12" Ppt, Artrw/agsp.	Favorable Normal Unfavorable	1,100 750 400	Bluebunch wheatgrass----- Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Arrowleaf balsamroot-----	25 25 15 5 5 5
Rock outcrop.					
27*: Chilcott-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 300	Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Rabbitbrush----- Bottlebrush squirreltail-----	35 30 5 5 5
Elijah-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 300	Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Rabbitbrush-----	35 30 5 5 5
28*: Chilcott-----	011xy001i, Loamy 10-12" Ppt, Artrw/agsp.	Favorable Normal Unfavorable	1,100 750 400	Bluebunch wheatgrass----- Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Arrowleaf balsamroot-----	25 25 15 5 5 5
Kunaton-----	010ay007i, Shallow Stony Loam 8-16" Ppt, Arar8/agsp.	Favorable Normal Unfavorable	400 300 250	Low sagebrush----- Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Arrowleaf balsamroot----- Lupine-----	35 20 15 5 5 5
Chardoton-----	011xy001i, Loamy 10-12" Ppt, Artrw/agsp.	Favorable Normal Unfavorable	1,100 750 400	Bluebunch wheatgrass----- Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Arrowleaf balsamroot-----	25 25 15 5 5 5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight Lb/acre		
29*: Chilcott-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable	700	Wyoming big sagebrush-----	35
		Normal	500	Thurber needlegrass-----	30
		Unfavorable	300	Sandberg bluegrass-----	5
				Rabbitbrush-----	5
				Bottlebrush squirreltail-----	5
Power-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable	700	Wyoming big sagebrush-----	35
		Normal	500	Thurber needlegrass-----	30
		Unfavorable	300	Sandberg bluegrass-----	5
				Bottlebrush squirreltail-----	5
				Rabbitbrush-----	5
31----- Colthorp	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable	700	Wyoming big sagebrush-----	35
		Normal	500	Thurber needlegrass-----	30
		Unfavorable	300	Sandberg bluegrass-----	5
				Bottlebrush squirreltail-----	5
				Dwarf green rabbitbrush-----	5
32*: Colthorp-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable	700	Wyoming big sagebrush-----	35
		Normal	500	Bottlebrush squirreltail-----	30
		Unfavorable	300	Thurber needlegrass-----	5
				Sandberg bluegrass-----	5
Chilcott-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable	700	Wyoming big sagebrush-----	35
		Normal	500	Thurber needlegrass-----	30
		Unfavorable	300	Sandberg bluegrass-----	5
				Rabbitbrush-----	5
				Bottlebrush squirreltail-----	5
33*: Colthorp-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable	700	Wyoming big sagebrush-----	35
		Normal	500	Thurber needlegrass-----	30
		Unfavorable	300	Sandberg bluegrass-----	5
				Bottlebrush squirreltail-----	5
				Dwarf green rabbitbrush-----	5
Kunaton-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable	700	Wyoming big sagebrush-----	35
		Normal	500	Thurber needlegrass-----	30
		Unfavorable	300	Sandberg bluegrass-----	5
				Bottlebrush squirreltail-----	5
				Rabbitbrush-----	5
34*: Colthorp-----	011xy001i, Loamy 10-12" Ppt, Artrw/agsp.	Favorable	1,100	Bluebunch wheatgrass-----	25
		Normal	750	Wyoming big sagebrush-----	25
		Unfavorable	400	Thurber needlegrass-----	15
				Sandberg bluegrass-----	5
				Bottlebrush squirreltail-----	5
				Arrowleaf balsamroot-----	5
Kunaton-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable	700	Wyoming big sagebrush-----	35
		Normal	500	Thurber needlegrass-----	30
		Unfavorable	300	Sandberg bluegrass-----	5
				Bottlebrush squirreltail-----	5
				Rabbitbrush-----	5
Rubble land.					

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight Lb/acre		Pct
35*: Colthorp-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 300	Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Dwarf green rabbitbrush-----	35 30 5 5 5
Minveno-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 300	Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Rabbitbrush----- Low sagebrush-----	35 30 5 5 5 5
36*: Colthorp-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 300	Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Dwarf green rabbitbrush-----	35 30 5 5 5
Rock outcrop.					
38*: Cottle-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 300	Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Arrowleaf balsamroot----- Dwarf green rabbitbrush-----	35 30 5 5 5 5
Sidlake-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 300	Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Rabbitbrush-----	35 30 5 5 5
39*: Cottle-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 300	Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Arrowleaf balsamroot----- Dwarf green rabbitbrush-----	35 30 5 5 5 5
Trevino-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 300	Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Rabbitbrush-----	35 30 5 5 5
Rock outcrop.					
40*: Cottle-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 300	Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Arrowleaf balsamroot----- Dwarf green rabbitbrush-----	35 30 5 5 5 5

See footnote at end of table.



TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight Lb/acre		Pct
40*: Willhill-----	025xy020i, Loamy 7-10" Ppt, Artrw/posa.	Favorable Normal Unfavorable	850 550 300	Wyoming big sagebrush----- Sandberg bluegrass----- Bottlebrush squirreltail----- Spiny hopsage----- Thurber needlegrass----- Indian ricegrass----- Phlox----- Arrowleaf balsamroot----- Rabbitbrush-----	25 15 10 10 5 5 5 5 5
41, 42----- Cowgil	011xy014i, Sandy Loam 8-12" Ppt, Artrw/orhy.	Favorable Normal Unfavorable	1,000 600 350	Wyoming big sagebrush----- Indian ricegrass----- Thurber needlegrass----- Bluegrass----- Bottlebrush squirreltail-----	35 20 15 5 5
43*: Cowgil-----	011xy014i, Sandy Loam 8-12" Ppt, Artrw/orhy.	Favorable Normal Unfavorable	1,000 600 350	Wyoming big sagebrush----- Indian ricegrass----- Thurber needlegrass----- Bluegrass----- Bottlebrush squirreltail-----	35 20 15 5 5
Rubble land. Rock outcrop.					
44----- Davey	011xy011i, Sand 8-12" Ppt, Arttr/orhy.	Favorable Normal Unfavorable	950 650 450	Basin big sagebrush----- Indian ricegrass----- Needleandthread----- Sand dropseed-----	30 25 15 5
45----- Davey	011xy014i, Sandy Loam 8-12" Ppt, Artrw/orhy.	Favorable Normal Unfavorable	1,000 600 350	Wyoming big sagebrush----- Indian ricegrass----- Thurber needlegrass----- Bottlebrush squirreltail----- Sandberg bluegrass-----	35 20 15 5 5
46*: Davey-----	011xy014i, Sandy Loam 8-12" Ppt, Artrw/orhy.	Favorable Normal Unfavorable	1,000 600 350	Wyoming big sagebrush----- Indian ricegrass----- Thurber needlegrass----- Bottlebrush squirreltail----- Sandberg bluegrass-----	35 20 15 5 5
Buko-----	011xy014i, Sandy Loam 8-12" Ppt, Artrw/orhy.	Favorable Normal Unfavorable	1,000 600 350	Wyoming big sagebrush----- Indian ricegrass----- Thurber needlegrass----- Bottlebrush squirreltail----- Sandberg bluegrass-----	35 20 15 5 5
47*: Davey-----	011xy014i, Sandy Loam 8-12" Ppt, Artrw/orhy.	Favorable Normal Unfavorable	1,000 600 350	Wyoming big sagebrush----- Indian ricegrass----- Thurber needlegrass----- Bottlebrush squirreltail----- Sandberg bluegrass-----	35 20 15 5 5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight Lb/acre		Pct
47*: Mazuma-----	011xy002i, Saline Bottom 8-12" Ppt, Save4/elci2.	Favorable Normal Unfavorable	1,200 900 600	Black greasewood----- Basin wildrye----- Inland saltgrass----- Bottlebrush squirreltail-----	40 35 10 5
48*: Davey-----	011xy011i, Sand 8-12" Ppt, Artrt/orhy.	Favorable Normal Unfavorable	950 650 450	Basin big sagebrush----- Indian ricegrass----- Needleandthread----- Sand dropseed-----	30 25 15 5
Quincy-----	011xy011i, Sand 8-12" Ppt, Artrt/orhy.	Favorable Normal Unfavorable	950 650 450	Basin big sagebrush----- Indian ricegrass----- Needleandthread----- Sand dropseed-----	30 25 15 5
49*: Davey-----	011xy014i, Sandy Loam 8-12" Ppt, Artrw/orhy.	Favorable Normal Unfavorable	1,000 600 350	Wyoming big sagebrush----- Indian ricegrass----- Thurber needlegrass----- Bottlebrush squirreltail----- Sandberg bluegrass-----	35 20 15 5 5
Vanderhoff-----	011xy010i, Calcareous Loam 7-10" Ppt, Atco/arsp/orhy/stth2.	Favorable Normal Unfavorable	700 500 250	Shadscale----- Bud sagebrush----- Indian ricegrass----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail-----	25 20 15 10 5 5
50, 51----- Dors	011xy010i, Calcareous Loam 7-10" Ppt, Atco/arsp/orhy/stth2.	Favorable Normal Unfavorable	700 500 250	Shadscale----- Bud sagebrush----- Indian ricegrass----- Thurber needlegrass----- Bottlebrush squirreltail----- Sandberg bluegrass-----	25 20 15 10 5 5
52*: Dors-----	011xy010i, Calcareous Loam 7-10" Ppt, Atco/arsp/orhy/stth2.	Favorable Normal Unfavorable	700 500 250	Shadscale----- Bud sagebrush----- Indian ricegrass----- Thurber needlegrass----- Bottlebrush squirreltail----- Sandberg bluegrass-----	25 20 15 10 5 5
Loray-----	011xy010i, Calcareous Loam 7-10" Ppt, Arco/arsp/orhy/stth2.	Favorable Normal Unfavorable	700 500 250	Shadscale----- Bud sagebrush----- Indian ricegrass----- Thurber needlegrass----- Bottlebrush squirreltail----- Sandberg bluegrass-----	25 20 15 10 5 5
54, 55----- Elijah	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 300	Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Rabbitbrush-----	35 30 5 5 5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight Lb/acre		Pct
56*: Elijah-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 300	Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Rabbitbrush-----	35 30 5 5 5
Purdam-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 300	Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Rabbitbrush-----	35 30 5 5 5
57*: Elkcreek-----	010ay004i, Loamy 12-16" Ppt, Artrv/feid.	Favorable Normal Unfavorable	1,200 900 750	Idaho fescue----- Bluebunch wheatgrass----- Mountain big sagebrush----- Lupine----- Arrowleaf balsamroot-----	25 15 15 10 5
Demast-----	010ay016i, Quaking Aspen 20+ Ppt.	Favorable Normal Unfavorable	600 450 400	Pine reedgrass----- Bluebunch wheatgrass----- Idaho fescue----- Lupine----- Sticky geranium----- Cinquefoil----- Groundsel-----	40 10 5 5 5 5 5
58*: Elkcreek-----	010ay004i, Loamy 12-16" Ppt, Artrv/feid.	Favorable Normal Unfavorable	1,200 900 750	Idaho fescue----- Bluebunch wheatgrass----- Mountain big sagebrush----- Lupine----- Arrowleaf balsamroot-----	25 15 15 10 5
Gaib-----	010ay007i, Shallow Stony Loam 8-16" Ppt, Arar8/agsp.	Favorable Normal Unfavorable	400 300 250	Low sagebrush----- Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Arrowleaf balsamroot----- Lupine-----	35 20 15 5 5 5
Simonton-----	010ay004i, Loamy 12-16" Ppt, Artrv/feid.	Favorable Normal Unfavorable	1,300 900 700	Idaho fescue----- Bluebunch wheatgrass----- Mountain big sagebrush----- Arrowleaf balsamroot----- Lupine-----	25 25 20 5 5
59*: Farrot-----	010xy007i, Loamy 12-16" Ppt, Artrx/agsp.	Favorable Normal Unfavorable	1,100 750 400	Bluebunch wheatgrass----- Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Arrowleaf balsamroot-----	25 25 15 5 5 5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight Lb/acre		Pct
59*: Haw-----	01lxy001i, Loamy 10-12" Ppt, Artrw/agsp.	Favorable Normal Unfavorable	1,100 750 400	Bluebunch wheatgrass----- Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Arrowleaf balsamroot-----	25 25 15 5 5 5
61*: Gaib-----	010ay021i, Fractured South Slope 12-16" Ppt, Artrv/agsp.	Favorable Normal Unfavorable	650 500 300	Bluebunch wheatgrass----- Mountain big sagebrush----- Phlox----- Arrowleaf balsamroot----- Nevada bluegrass----- Bottlebrush squirreltail-----	35 25 10 5 5 5
Rubble land.					
62*: Gaib-----	010ay007i, Shallow Stony Loam 8-16" Ppt, Arar8/agsp.	Favorable Normal Unfavorable	400 300 250	Low sagebrush----- Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Arrowleaf balsamroot----- Lupine-----	35 20 15 5 5 5
Elkcreek-----	010ay004i, Loamy 12-16" Ppt, Artrv/feid.	Favorable Normal Unfavorable	1,200 900 750	Idaho fescue----- Bluebunch wheatgrass----- Mountain big sagebrush----- Lupine----- Arrowleaf balsamroot-----	25 15 15 10 5
Rock outcrop.					
63*: Gaib-----	010ay021i, Fractured South Slope 12-16" Ppt, Artrv/agsp.	Favorable Normal Unfavorable	650 500 300	Bluebunch wheatgrass----- Mountain big sagebrush----- Phlox----- Arrowleaf balsamroot----- Nevada bluegrass----- Bottlebrush squirreltail-----	35 25 10 5 5 5
Elkcreek-----	010ay004i, Loamy 12-16" Ppt, Artrv/feid.	Favorable Normal Unfavorable	1,200 900 750	Idaho fescue----- Bluebunch wheatgrass----- Mountain big sagebrush----- Lupine----- Arrowleaf balsamroot-----	25 15 15 10 5
Simonton-----	010ay004i, Loamy 12-16" Ppt, Artrv/feid.	Favorable Normal Unfavorable	1,300 900 700	Idaho fescue----- Bluebunch wheatgrass----- Mountain big sagebrush----- Arrowleaf balsamroot----- Lupine-----	25 25 20 5 5
64*: Gaib-----	010ay007i, Shallow Stony Loam 8-16" Ppt, Arar8/agsp.	Favorable Normal Unfavorable	400 300 250	Low sagebrush----- Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Arrowleaf balsamroot----- Lupine-----	35 20 15 5 5 5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight Lb/acre		
64*: Simonton-----	010ay004i, Loamy 12-16" Ppt, Artrv/feid.	Favorable Normal Unfavorable	1,300 900 700	Idaho fescue----- Bluebunch wheatgrass----- Mountain big sagebrush----- Arrowleaf balsamroot----- Lupine-----	25 25 20 5 5
Rock outcrop.					
65----- Garbutt	011xy009i, Silty 7-10" Ppt, Eula.	Favorable Normal Unfavorable	750 600 300	Winterfat----- Indian ricegrass----- Bottlebrush squirreltail-----	50 15 5
66----- Garbutt	011xy010i, Calcareous Loam 7-10" Ppt, Atco/arsp/orhy/stth2.	Favorable Normal Unfavorable	700 500 250	Shadscale----- Bud sagebrush----- Indian ricegrass----- Thurber needlegrass----- Bottlebrush squirreltail----- Sandberg bluegrass-----	25 20 15 10 5 5
67*: Garbutt-----	011xy009i, Silty 7-10" Ppt, Eula.	Favorable Normal Unfavorable	750 600 300	Winterfat----- Indian ricegrass----- Bottlebrush squirreltail-----	50 15 5
Weso-----	011xy010i, Calcareous Loam 7-10" Ppt, Atco/arsp/orhy/stth2.	Favorable Normal Unfavorable	700 500 250	Shadscale----- Bud sagebrush----- Indian ricegrass----- Thurber needlegrass----- Bottlebrush squirreltail----- Sandberg bluegrass-----	25 20 15 10 5 5
68*: Garbutt-----	011xy009i, Silty 7-10" Ppt, Eula.	Favorable Normal Unfavorable	750 600 300	Winterfat----- Indian ricegrass----- Bottlebrush squirreltail-----	50 15 5
Weso-----	011xy010i, Calcareous Loam 7-10" Ppt, Atco/arsp/orhy/stth2.	Favorable Normal Unfavorable	700 500 250	Shadscale----- Bud sagebrush----- Indian ricegrass----- Thurber needlegrass----- Bottlebrush squirreltail----- Sandberg bluegrass-----	25 20 15 10 5 5
Trevino-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 300	Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Rabbitbrush-----	35 30 5 5 5
69*: Garbutt-----	011xy010i, Calcareous Loam 7-10" Ppt, Atco/arsp/orhy/stth2.	Favorable Normal Unfavorable	700 500 250	Shadscale----- Bud sagebrush----- Indian ricegrass----- Thurber needlegrass----- Bottlebrush squirreltail----- Sandberg bluegrass-----	25 20 15 10 5 5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight Lb/acre		Pct
69*: Trevino-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 300	Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Rabbitbrush-----	35 30 5 5 5
71*: Grandview-----	011xy002i, Saline Bottom 8-12" Ppt, Save4/elci2.	Favorable Normal Unfavorable	1,200 900 600	Black greasewood----- Basin wildrye----- Inland saltgrass----- Bottlebrush squirreltail-----	40 35 10 5
Garbutt-----	011xy010i, Calcareous Loam 7-10" Ppt, Atco/arsp/orhy/stth2.	Favorable Normal Unfavorable	700 500 250	Shadscale----- Bud sagebrush----- Indian ricegrass----- Thurber needlegrass----- Bottlebrush squirreltail----- Sandberg bluegrass-----	25 20 15 10 5 5
74*: Greenleaf-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 300	Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Rabbitbrush-----	35 30 5 5 5
Shano-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 200	Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Rabbitbrush-----	35 30 5 5 5
75*: Haplaquolls-----	010ay027i, Wet Meadow-----	Favorable Normal Unfavorable	4,500 3,600 3,000	Sedge----- Tufted hairgrass----- Nebraska sedge----- Baltic rush----- Common camas-----	25 15 15 5 5
Xerofluvents-----	010ay028i, Semiwet Meadow-----	Favorable Normal Unfavorable	4,000 2,250 1,600	Slender wheatgrass----- Sedge----- Tufted hairgrass----- Basin wildrye----- Mountain brome----- Western wheatgrass----- Streambank wheatgrass----- Shrubby cinquefoil----- Clover-----	20 20 10 5 5 5 5 5 5
76*: Harahill-----	010ay004i, Loamy 12-16" Ppt, Artrv/feid.	Favorable Normal Unfavorable	1,200 900 750	Idaho fescue----- Bluebunch wheatgrass----- Mountain big sagebrush----- Lupine----- Arrowleaf balsamroot-----	25 15 15 10 5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight Lb/acre		
76*: Willho-----	010ay007i, Shallow Stony Loam 8-16" Ppt, Arar8/agsp.	Favorable Normal Unfavorable	450 300 250	Low sagebrush----- Bluebunch wheatgrass----- Sandberg bluegrass----- Lupine----- Arrowleaf balsamroot----- Thurber needlegrass-----	35 20 15 5 5 5
77*: Haw-----	011xy001i, Loamy 10-12" Ppt, Artrw/agsp.	Favorable Normal Unfavorable	1,100 750 400	Bluebunch wheatgrass----- Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Arrowleaf balsamroot-----	25 25 15 5 5 5
Farrot-----	010xy007i, Loamy 12-16" Ppt, Artrx/agsp.	Favorable Normal Unfavorable	1,100 750 400	Bluebunch wheatgrass----- Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Arrowleaf balsamroot-----	25 25 15 5 5 5
78*: Haw-----	011xy001i, Loamy 10-12" Ppt, Artrw/agsp.	Favorable Normal Unfavorable	1,100 750 400	Bluebunch wheatgrass----- Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Arrowleaf balsamroot-----	25 25 15 5 5 5
Lankbush-----	011xy001i, Loamy 10-12" Ppt, Artrw/agsp.	Favorable Normal Unfavorable	1,100 750 400	Bluebunch wheatgrass----- Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Arrowleaf balsamroot-----	25 25 15 5 5 5
79----- Hawsley	011xy002i, Saline Bottom 8-12" Ppt, Save4/elci2.	Favorable Normal Unfavorable	1,200 900 600	Greasewood----- Basin wildrye----- Inland saltgrass----- Bottlebrush squirreltail-----	40 35 10 5
80*: Hotcreek-----	025xy040i, Shallow Stony 8-12" Ppt, Ararn/stth2.	Favorable Normal Unfavorable	700 350 200	Thurber needlegrass----- Black sagebrush----- Bottlebrush squirreltail----- Bluebunch wheatgrass----- Sandberg bluegrass----- Arrowleaf balsamroot----- Spiny hopsage----- Phlox-----	20 20 15 5 5 5 5 5
Troughs-----	025xy020i, Loamy 7-10" Ppt, Artrw/posa.	Favorable Normal Unfavorable	850 550 300	Wyoming big sagebrush----- Sandberg bluegrass----- Bottlebrush squirreltail----- Spiny hopsage-----	35 25 10 5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight Lb/acre		Pct
81----- Houk	010ay028i, Semiwet Meadow-----	Favorable Normal Unfavorable	4,000 2,250 1,600	Slender wheatgrass----- Sedge----- Tufted hairgrass----- Basin wildrye----- Mountain brome----- Western wheatgrass----- Streambank wheatgrass----- Shrubby cinquefoil----- Clover-----	20 20 10 5 5 5 5 5 5
82----- Immiant	010ay019i, Loamy 12-16" Ppt, Artrv/agsp.	Favorable Normal Unfavorable	1,100 900 750	Bluebunch wheatgrass----- Mountain big sagebrush----- Thurber needlegrass----- Western needlegrass----- Idaho fescue----- Arrowleaf balsamroot----- Lupine----- Antelope bitterbrush-----	25 20 10 10 5 5 5 5
83*: Immiant-----	010ay019i, Loamy 12-16" Ppt, Artrv/agsp.	Favorable Normal Unfavorable	1,100 900 750	Bluebunch wheatgrass----- Mountain big sagebrush----- Thurber needlegrass----- Western needlegrass----- Idaho fescue----- Arrowleaf balsamroot----- Lupine----- Antelope bitterbrush-----	25 20 10 10 5 5 5 5
Ruckles-----  Rock outcrop.	010ay007i, Shallow Stony Loam 8-16" Ppt, Arar8/agsp.	Favorable Normal Unfavorable	400 300 250	Low sagebrush----- Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Arrowleaf balsamroot----- Lupine-----	35 20 15 5 5 5
84----- Jacquith	011xy014i, Sandy Loam 8-12" Ppt, Artrw/orhy.	Favorable Normal Unfavorable	1,000 600 350	Wyoming big sagebrush----- Indian ricegrass----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail-----	35 20 15 5 5
85----- Jacquith	011xy011i, Sand 8-12" Ppt, Artrt/orhy.	Favorable Normal Unfavorable	950 650 450	Basin big sagebrush----- Indian ricegrass----- Needleandthread----- Sand dropseed-----	30 25 15 5
86*: Jacquith-----	011xy011i, Sand 8-12" Ppt, Artrt/orhy.	Favorable Normal Unfavorable	950 650 450	Basin big sagebrush----- Indian ricegrass----- Needleandthread----- Sand dropseed-----	30 25 15 5
Quincy-----	011xy011i, Sand 8-12" Ppt, Artrt/orhy.	Favorable Normal Unfavorable	950 650 450	Basin big sagebrush----- Indian ricegrass----- Needleandthread----- Sand dropseed-----	30 25 15 5

See footnote at end of table.



TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight Lb/acre		Pct
87*: Karcac-----	010ay007i, Shallow Stony Loam 8-16" Ppt, Arar8/agsp.	Favorable	450	Low sagebrush-----	35
		Normal	300	Bluebunch wheatgrass-----	20
		Unfavorable	250	Nevada bluegrass-----	15
				Needlegrass-----	5
				Arrowleaf balsamroot-----	5
Day-----	010ay007i, Shallow Stony Loam 8-16" Ppt, Arar8/agsp.	Favorable	400	Low sagebrush-----	35
		Normal	300	Bluebunch wheatgrass-----	20
		Unfavorable	250	Sandberg bluegrass-----	15
				Thurber needlegrass-----	5
				Arrowleaf balsamroot-----	5
Rock outcrop.				Lupine-----	5
88----- Kunaton	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable	700	Wyoming big sagebrush-----	35
		Normal	500	Thurber needlegrass-----	30
		Unfavorable	300	Sandberg bluegrass-----	5
				Bottlebrush squirreltail-----	5
				Rabbitbrush-----	5
89*: Kunaton-----	011xy001i, Loamy 10-12" Ppt, Artrw/agsp.	Favorable	1,100	Bluebunch wheatgrass-----	25
		Normal	750	Wyoming big sagebrush-----	25
		Unfavorable	400	Thurber needlegrass-----	15
				Sandberg bluegrass-----	5
				Bottlebrush squirreltail-----	5
Chilcott-----	011xy001i, Loamy 10-12" Ppt, Artrw/agsp.	Favorable	1,100	Bluebunch wheatgrass-----	25
		Normal	750	Wyoming big sagebrush-----	25
		Unfavorable	400	Thurber needlegrass-----	15
				Sandberg bluegrass-----	5
				Arrowleaf balsamroot-----	5
				Bottlebrush squirreltail-----	5
91*: Lankbush-----	011xy001i, Loamy 10-12" Ppt, Artrw/agsp.	Favorable	1,100	Bluebunch wheatgrass-----	25
		Normal	750	Wyoming big sagebrush-----	25
		Unfavorable	400	Thurber needlegrass-----	15
				Sandberg bluegrass-----	5
				Bottlebrush squirreltail-----	5
				Arrowleaf balsamroot-----	5
Lanktree-----	011xy001i, Loamy 10-12" Ppt, Artrw/agsp.	Favorable	1,100	Bluebunch wheatgrass-----	25
		Normal	750	Wyoming big sagebrush-----	25
		Unfavorable	400	Thurber needlegrass-----	15
				Sandberg bluegrass-----	5
				Bottlebrush squirreltail-----	5
				Arrowleaf balsamroot-----	5
92*: Lankbush-----	011xy001i, Loamy 10-12" Ppt, Artrw/agsp.	Favorable	1,100	Bluebunch wheatgrass-----	25
		Normal	750	Wyoming big sagebrush-----	25
		Unfavorable	400	Thurber needlegrass-----	15
				Sandberg bluegrass-----	5
				Bottlebrush squirreltail-----	5
				Arrowleaf balsamroot-----	5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight lb/acre		Pct
92*: Jenness-----	011xy015i, Loamy Bottom 8-14" Ppt, Artrt/elci2.	Favorable Normal Unfavorable	1,600 1,200 800	Basin wildrye----- Basin big sagebrush----- Nevada bluegrass----- Sedge----- Bottlebrush squirreltail----- Wheatgrass----- Tall green rabbitbrush-----	45 15 5 5 5 5 5
93----- Lanktree	011xy001i, Loamy 10-12" Ppt, Artrw/agsp.	Favorable Normal Unfavorable	1,100 750 400	Bluebunch wheatgrass----- Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Arrowleaf balsamroot-----	25 25 15 5 5 5
94*: Lanktree-----	011xy001i, Loamy 10-12" Ppt, Artrw/agsp.	Favorable Normal Unfavorable	1,100 750 400	Bluebunch wheatgrass----- Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Arrowleaf balsamroot-----	25 25 15 5 5 5
Chilcott-----	011xy001i, Loamy 10-12" Ppt, Artrw/agsp.	Favorable Normal Unfavorable	1,100 750 400	Bluebunch wheatgrass----- Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Arrowleaf balsamroot----- Bottlebrush squirreltail-----	25 25 15 5 5 5
96----- Letha	011ay007i, Semiwet Saline Meadow, Save4/dist.	Favorable Normal Unfavorable	2,000 1,300 900	Inland saltgrass----- Alkali bluegrass----- Alkali sacaton----- Basin wildrye----- Black greasewood----- Sedge-----	25 15 15 10 5 5
97*: Letha-----	011ay007i, Semiwet Saline Meadow, Save4/dist.	Favorable Normal Unfavorable	2,000 1,300 900	Inland saltgrass----- Alkali bluegrass----- Alkali sacaton----- Basin wildrye----- Black greasewood----- Sedge-----	25 15 15 10 5 5
Baldock-----	011ay007i, Semiwet Saline Meadow, Save4/dist.	Favorable Normal Unfavorable	2,000 1,300 900	Inland saltgrass----- Alkali bluegrass----- Alkali sacaton----- Basin wildrye----- Sedge----- Black greasewood-----	25 15 15 10 5 5
98----- Loray	011xy010i, Calcareous Loam 7-10" Ppt, Atco/arsp/orhy/stth2.	Favorable Normal Unfavorable	700 500 250	Shadscale----- Bud sagebrush----- Indian ricegrass----- Thurber needlegrass----- Bottlebrush squirreltail----- Sandberg bluegrass-----	25 20 15 10 5 5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight Lb/acre		Pct
99*: Loray-----	011xy010i, Calcareous Loam 7-10" Ppt, Atco/arsp/orhy/stth2.	Favorable	700	Shadscale-----	25
		Normal	500	Bud sagebrush-----	20
		Unfavorable	250	Indian ricegrass-----	15
				Thurber needlegrass-----	10
				Bottlebrush squirreltail-----	5
				Sandberg bluegrass-----	5
Dors-----	011xy010i, Calcareous Loam 7-10" Ppt, Atco/arsp/orhy/stth2.	Favorable	700	Shadscale-----	25
		Normal	500	Bud sagebrush-----	20
		Unfavorable	250	Indian ricegrass-----	15
				Thurber needlegrass-----	10
				Bottlebrush squirreltail-----	5
				Sandberg bluegrass-----	5
100----- Mazuma	011xy002i, Saline Bottom 8-12" Ppt, Save4/elci2.	Favorable	1,200	Black greasewood-----	40
		Normal	900	Basin wildrye-----	35
		Unfavorable	600	Inland saltgrass-----	10
				Bottlebrush squirreltail-----	5
101*: Mazuma-----	011xy002i, Saline Bottom 8-12" Ppt, Save4/elci2.	Favorable	1,200	Black greasewood-----	40
		Normal	900	Basin wildrye-----	35
		Unfavorable	600	Inland saltgrass-----	10
				Bottlebrush squirreltail-----	5
Hawsley-----	011xy002i, Saline Bottom 8-12" Ppt, Save4/elci2.	Favorable	1,200	Greasewood-----	40
		Normal	900	Basin wildrye-----	35
		Unfavorable	600	Inland saltgrass-----	10
				Bottlebrush squirreltail-----	5
102----- McKeeth	011xy010i, Calcareous Loam 7-10" Ppt, Atco/arsp/orhy/stth2.	Favorable	700	Shadscale-----	25
		Normal	500	Bud sagebrush-----	20
		Unfavorable	250	Indian ricegrass-----	15
				Thurber needlegrass-----	10
				Bottlebrush squirreltail-----	5
				Sandberg bluegrass-----	5
103*, 104*: Minidoka-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable	700	Wyoming big sagebrush-----	35
		Normal	500	Thurber needlegrass-----	30
		Unfavorable	300	Bottlebrush squirreltail-----	5
				Sandberg bluegrass-----	5
				Rabbitbrush-----	5
Minveno-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable	700	Wyoming big sagebrush-----	35
		Normal	500	Thurber needlegrass-----	30
		Unfavorable	300	Sandberg bluegrass-----	5
				Bottlebrush squirreltail-----	5
				Rabbitbrush-----	5
				Low sagebrush-----	5
105, 106----- Minveno	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable	700	Wyoming big sagebrush-----	35
		Normal	500	Thurber needlegrass-----	30
		Unfavorable	300	Sandberg bluegrass-----	5
				Bottlebrush squirreltail-----	5
				Rabbitbrush-----	5
				Low sagebrush-----	5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site	Total production		Characteristic vegetation	Compo- sition
		Kind of year	Dry weight Lb/acre		
107*: Minveno-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 300	Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Rabbitbrush----- Low sagebrush-----	35 30 5 5 5 5
Minidoka-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 300	Wyoming big sagebrush----- Thurber needlegrass----- Bottlebrush squirreltail----- Sandberg bluegrass----- Rabbitbrush-----	35 30 5 5 5
108*: Monroe-----	011xy015i, Loamy Bottom 8-14" Ppt, Artrt/elci2.	Favorable Normal Unfavorable	1,600 1,200 800	Basin wildrye----- Basin big sagebrush----- Nevada bluegrass----- Sedge----- Bottlebrush squirreltail----- Wheatgrass----- Tall green rabbitbrush-----	45 15 5 5 5 5 5
Jenness-----	011xy015i, Loamy Bottom 8-14" Ppt, Artrt/elci2.	Favorable Normal Unfavorable	1,600 1,200 800	Basin wildrye----- Basin big sagebrush----- Nevada bluegrass----- Sedge----- Bottlebrush squirreltail----- Wheatgrass----- Tall green rabbitbrush-----	45 15 5 5 5 5 5
110*: Moran-----	012xy024i, Subalpine Slope Loamy 20+" Ppt, Artrs/feid.	Favorable Normal Unfavorable	1,600 1,425 1,000	Lupine----- Subalpine big sagebrush----- Idaho fescue----- Bluebunch wheatgrass----- Arrowleaf balsamroot----- Wyeth erigonum----- Mountain goldenrod----- Geranium----- Cinquefoil-----	15 15 10 10 10 10 5 5 5
Teewinot-----	012xy024i, Subalpine Slope Loamy 20+" Ppt, Artrs/feid.	Favorable Normal Unfavorable	1,600 1,425 1,000	Big sagebrush----- Subalpine big sagebrush----- Bluebunch wheatgrass----- Idaho fescue-----	15 15 10 10
Coski.					
111----- Oland	010ay019i, Loamy 12-16" Ppt, Artrv/agsp.	Favorable Normal Unfavorable	1,100 900 750	Bluebunch wheatgrass----- Mountain big sagebrush----- Thurber needlegrass----- Western needlegrass----- Idaho fescue----- Lupine-----	25 20 10 10 5 5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight Lb/acre		
112----- Ornea	011xy0101, Calcareous Loam 7-10" Ppt, Atco/arsp/orhy/stth2.	Favorable Normal Unfavorable	700 500 250	Shadscale----- Bud sagebrush----- Indian ricegrass----- Thurber needlegrass----- Bottlebrush squirreltail----- Sandberg bluegrass-----	25 20 15 10 5 5
113*: Owsel-----	011xy0031, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 300	Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Tall green rabbitbrush-----	35 30 5 5 5
Purdam-----	011xy0031, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 300	Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Rabbitbrush-----	35 30 5 5 5
114*: Perazzo-----	011xy0101, Calcareous Loam 7-10" Ppt, Atco/arsp/orhy/stth2.	Favorable Normal Unfavorable	700 500 250	Shadscale----- Bud sagebrush----- Indian ricegrass----- Thurber needlegrass----- Bottlebrush squirreltail----- Sandberg bluegrass-----	25 20 15 10 5 5
Ornea-----	011xy0101, Calcareous Loam 7-10" Ppt, Atco/arsp/orhy/stth2.	Favorable Normal Unfavorable	700 500 250	Shadscale----- Bud sagebrush----- Indian ricegrass----- Thurber needlegrass----- Bottlebrush squirreltail----- Sandberg bluegrass-----	25 20 15 10 5 5
Abgese-----	011xy0141, Sandy Loam 8-12" Ppt, Artrw/orhy.	Favorable Normal Unfavorable	900 600 350	Wyoming big sagebrush----- Indian ricegrass----- Thurber needlegrass----- Bottlebrush squirreltail-----	35 20 15 5
117*: Power-----	011xy0031, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 300	Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Rabbitbrush-----	35 30 5 5 5
Chardoton-----	011xy0031, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 300	Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Rabbitbrush-----	35 30 5 5 5
118*: Power-----	011xy0031, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 300	Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Rabbitbrush-----	35 30 5 5 5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight Lb/acre		Pct
118*: Jenness-----	011xy015i, Loamy Bottom 8-14" Ppt, Artrt/elci2.	Favorable	1,600	Basin wildrye-----	45
		Normal	1,200	Basin big sagebrush-----	15
		Unfavorable	800	Nevada bluegrass-----	5
				Sedge-----	5
				Bottlebrush squirreltail-----	5
				Wheatgrass-----	5
				Tall green rabbitbrush-----	5
120, 121----- Purdam	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable	700	Wyoming big sagebrush-----	35
		Normal	500	Thurber needlegrass-----	30
		Unfavorable	300	Sandberg bluegrass-----	5
				Bottlebrush squirreltail-----	5
				Rabbitbrush-----	5
122*: Purdam-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable	700	Wyoming big sagebrush-----	35
		Normal	500	Thurber needlegrass-----	30
		Unfavorable	300	Sandberg bluegrass-----	5
				Bottlebrush squirreltail-----	5
				Rabbitbrush-----	5
Sebree-----	01lay013i, Slick Spot-Sodic 8-14" Ppt.	Favorable	100	Sandberg bluegrass-----	10
		Normal	75	Pepperweed-----	10
		Unfavorable	25	Russian-thistle-----	10
				Wyoming big sagebrush-----	10
				Bluebunch wheatgrass-----	5
				Bottlebrush squirreltail-----	5
				Black greasewood-----	5
				Thurber needlegrass-----	5
Owsel-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable	700	Wyoming big sagebrush-----	35
		Normal	500	Thurber needlegrass-----	30
		Unfavorable	300	Sandberg bluegrass-----	5
				Bottlebrush squirreltail-----	5
				Tall green rabbitbrush-----	5
124, 125----- Quincy	011xy011i, Sand 8-12" Ppt, Artrt/orhy.	Favorable	950	Basin big sagebrush-----	30
		Normal	650	Indian ricegrass-----	25
		Unfavorable	450	Needleandthread-----	15
				Sand dropseed-----	5
126*: Rainey-----	010ay009i, South Slope Gravelly 12-16" Ppt, Artrv/agsp.	Favorable	1,100	Bluebunch wheatgrass-----	30
		Normal	700	Mountain big sagebrush-----	20
		Unfavorable	550	Nevada bluegrass-----	5
				Tapertip hawksbeard-----	5
				Antelope bitterbrush-----	5
Brownlee-----	010ay019i, Loamy 12-16" Ppt, Artrv/agsp.	Favorable	1,100	Bluebunch wheatgrass-----	25
		Normal	900	Mountain big sagebrush-----	20
		Unfavorable	750	Thurber needlegrass-----	10
				Oregon princesplume-----	10
				Idaho fescue-----	5
				Arrowleaf balsamroot-----	5
				Lupine-----	5
				Antelope bitterbrush-----	5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight Lb/acre		Pct
127*: Rainey-----	010ay009i, South Slope Gravelly 12-16" Ppt, Artrv/agsp.	Favorable Normal Unfavorable	1,100 700 550	Bluebunch wheatgrass----- Mountain big sagebrush----- Nevada bluegrass----- Tapertip hawksbeard----- Antelope bitterbrush-----	30 20 5 5 5
Schoolhouse-----	010ay009i, South Slope Gravelly 12-16" Ppt, Artrv/agsp.	Favorable Normal Unfavorable	1,100 700 550	Bluebunch wheatgrass----- Mountain big sagebrush----- Nevada bluegrass----- Tapertip hawksbeard----- Antelope bitterbrush-----	30 20 5 5 5
Oland-----	010ay019i, Loamy 12-16" Ppt, Artrv/agsp.	Favorable Normal Unfavorable	1,100 900 750	Bluebunch wheatgrass----- Mountain big sagebrush----- Thurber needlegrass----- Western needlegrass----- Idaho fescue----- Lupine-----	25 20 10 10 5 5
128*: Rainey-----	010ay009i, South Slope Gravelly 12-16" Ppt, Artrv/agsp.	Favorable Normal Unfavorable	1,100 700 550	Bluebunch wheatgrass----- Mountain big sagebrush----- Nevada bluegrass----- Tapertip hawksbeard----- Antelope bitterbrush-----	30 20 5 5 5
Van Dusen-----	010ay019i, Loamy 12-16" Ppt, Artrv/agsp.	Favorable Normal Unfavorable	1,100 900 750	Bluebunch wheatgrass----- Mountain big sagebrush----- Western needlegrass----- Thurber needlegrass----- Idaho fescue----- Arrowleaf balsamroot----- Lupine----- Antelope bitterbrush-----	25 20 10 10 5 5 5 5
129*: Rainey-----	010ay009i, South Slope Gravelly 12-16" Ppt, Artrv/agsp.	Favorable Normal Unfavorable	1,100 700 550	Bluebunch wheatgrass----- Mountain big sagebrush----- Nevada bluegrass----- Tapertip hawksbeard----- Antelope bitterbrush-----	30 20 5 5 5
Van Dusen-----	010ay019i, Loamy 12-16" Ppt, Artrv/agsp.	Favorable Normal Unfavorable	1,100 900 750	Bluebunch wheatgrass----- Mountain big sagebrush----- Western needlegrass----- Thurber needlegrass----- Idaho fescue----- Arrowleaf balsamroot----- Lupine----- Antelope bitterbrush-----	25 20 10 10 5 5 5 5
Schoolhouse-----	010ay009i, South Slope Gravelly 12-16" Ppt, Artrv/agsp.	Favorable Normal Unfavorable	1,100 700 550	Bluebunch wheatgrass----- Mountain big sagebrush----- Nevada bluegrass----- Tapertip hawksbeard----- Antelope bitterbrush-----	30 20 5 5 5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight Lb/acre		
130*: Roanhide-----	010ay0041, Loamy 12-16" Ppt, Artrv/feid.	Favorable Normal Unfavorable	1,200 900 750	Idaho fescue----- Bluebunch wheatgrass----- Lupine----- Mountain big sagebrush----- Arrowleaf balsamroot-----	25 15 10 10 5
Bauscher-----	010ay004i, Loamy 12-16" Ppt, Artrv/feid.	Favorable Normal Unfavorable	1,200 900 750	Idaho fescue----- Bluebunch wheatgrass----- Mountain big sagebrush----- Lupine----- Arrowleaf balsamroot-----	25 15 15 10 5
131*: Roanhide-----	010ay009i, South Slope Gravelly 12-16" Ppt, Artrv/agsp.	Favorable Normal Unfavorable	1,100 700 550	Bluebunch wheatgrass----- Mountain big sagebrush----- Nevada bluegrass----- Tapertip hawksbeard----- Antelope bitterbrush-----	30 20 5 5 5
Bauscher-----	010ay008i, North Slope Loamy 16-20" Ppt, Artrv/feid.	Favorable Normal Unfavorable	1,400 1,000 800	Idaho fescue----- Bluebunch wheatgrass----- Mountain big sagebrush----- Arrowleaf balsamroot----- Snowberry----- Lupine-----	30 10 10 5 5 5
Schoolhouse-----	010ay009i, South Slope Gravelly 12-16" Ppt, Artrv/agsp.	Favorable Normal Unfavorable	1,100 700 550	Bluebunch wheatgrass----- Mountain big sagebrush----- Nevada bluegrass----- Tapertip hawksbeard----- Antelope bitterbrush-----	30 20 5 5 5
133, 134----- Royal	011xy014i, Sandy Loam 8-12" Ppt, Artrw/orhy.	Favorable Normal Unfavorable	1,000 600 350	Wyoming big sagebrush----- Indian ricegrass----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail-----	35 20 15 5 5
135*, 136*: Royal-----	011xy014i, Sandy Loam 8-12" Ppt, Artrw/orhy.	Favorable Normal Unfavorable	1,000 600 350	Wyoming big sagebrush----- Indian ricegrass----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail-----	35 20 15 5 5
Davey-----	011xy014i, Sandy Loam 8-12" Ppt, Artrw/orhy.	Favorable Normal Unfavorable	1,000 600 350	Wyoming big sagebrush----- Indian ricegrass----- Thurber needlegrass----- Bottlebrush squirreltail----- Sandberg bluegrass-----	35 20 15 5 5
137*: Royal-----	011xy014i, Sandy Loam 8-12" Ppt, Artrw/orhy.	Favorable Normal Unfavorable	1,000 600 350	Wyoming big sagebrush----- Indian ricegrass----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail-----	35 20 15 5 5

See footnote at end of table.



TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight Lb/acre		
137*: Shano-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 200	Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Rabbitbrush-----	35 30 5 5 5
Rock outcrop.					
138*: Royal-----	011xy014i, Sandy Loam 8-12" Ppt, Artrw/orhy.	Favorable Normal Unfavorable	1,000 600 350	Wyoming big sagebrush----- Indian ricegrass----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail-----	35 20 15 5 5
Truesdale-----	011xy014i, Sandy Loam 8-12" Ppt, Artrw/orhy.	Favorable Normal Unfavorable	1,000 600 350	Wyoming big sagebrush----- Indian ricegrass----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail-----	35 20 15 5 5
139----- Ruckles	010ay007i, Shallow Stony Loam 8-16" Ppt, Arar8/agsp.	Favorable Normal Unfavorable	400 300 250	Bluebunch wheatgrass----- Sandberg bluegrass----- Stiff sagebrush----- Wyoming big sagebrush----- Biscuitroot-----	20 15 5 5 5
140*: Schoolhouse-----	010ay009i, South Slope Gravelly 12-16" Ppt, Artrv/agsp.	Favorable Normal Unfavorable	1,100 700 550	Bluebunch wheatgrass----- Mountain big sagebrush----- Nevada bluegrass----- Tapertip hawksbeard----- Antelope bitterbrush-----	30 20 5 5 5
Rock outcrop.					
141----- Scism	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 300	Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Rabbitbrush-----	35 30 5 5 5
142----- Scoon	011xy014i, Sandy Loam 8-12" Ppt, Artrw/orhy.	Favorable Normal Unfavorable	1,000 600 350	Wyoming big sagebrush----- Indian ricegrass----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail-----	35 20 15 5 5
143----- Shano	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 200	Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Rabbitbrush-----	35 30 5 5 5
144*: Shano-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 200	Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Rabbitbrush-----	35 30 5 5 5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight Lb/acre		Pct
144*: Owsel-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 300	Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Tall green rabbitbrush-----	35 30 5 5 5
145*: Shano-----	011xy014i, Sandy Loam 8-12" Ppt, Artrw/orhy.	Favorable Normal Unfavorable	1,000 600 350	Wyoming big sagebrush----- Indian ricegrass----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail-----	35 20 15 5 5
Truesdale-----	011xy014i, Sandy Loam 8-12" Ppt, Artrw/orhy.	Favorable Normal Unfavorable	1,000 600 350	Wyoming big sagebrush----- Indian ricegrass----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail-----	35 20 15 5 5
146----- Shoofly	011xy010i, Calcareous Loam 7-10" Ppt, Atco/arsp/orhy/stth2.	Favorable Normal Unfavorable	700 500 250	Shadscale----- Bud sagebrush----- Indian ricegrass----- Thurber needlegrass----- Bottlebrush squirreltail----- Sandberg bluegrass-----	25 20 15 10 5 5
147*: Shoofly-----	011xy010i, Calcareous Loam 7-10" Ppt, Atco/arsp/orhy/stth2.	Favorable Normal Unfavorable	700 500 250	Shadscale----- Bud sagebrush----- Indian ricegrass----- Thurber needlegrass----- Bottlebrush squirreltail----- Sandberg bluegrass-----	25 20 15 10 5 5
Ornea-----	011xy010i, Calcareous Loam 7-10" Ppt, Atco/arsp/orhy/stth2.	Favorable Normal Unfavorable	700 500 250	Shadscale----- Bud sagebrush----- Indian ricegrass----- Thurber needlegrass----- Bottlebrush squirreltail----- Sandberg bluegrass-----	25 20 15 10 5 5
148*: Sidlake-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 300	Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Rabbitbrush-----	35 30 5 5 5
Bruncan-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 300	Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Rabbitbrush-----	35 30 5 5 5
149----- Simonton	010ay004i, Loamy 12-16" Ppt, Artrv/feid.	Favorable Normal Unfavorable	1,300 900 700	Idaho fescue----- Bluebunch wheatgrass----- Mountain big sagebrush----- Arrowleaf balsamroot----- Lupine-----	25 25 20 5 5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight lb/acre		
150*: Simonton-----	010ay004i, Loamy 12-16" Ppt, Artrv/feid.	Favorable Normal Unfavorable	1,300 900 700	Idaho fescue----- Bluebunch wheatgrass----- Mountain big sagebrush----- Arrowleaf balsamroot----- Lupine-----	25 25 20 5 5
Bauscher-----	010ay004i, Loamy 12-16" Ppt, Artrv/feid.	Favorable Normal Unfavorable	1,200 900 750	Idaho fescue----- Bluebunch wheatgrass----- Mountain big sagebrush----- Lupine----- Arrowleaf balsamroot-----	25 15 15 10 5
151*: Simonton-----	010ay004i, Loamy 12-16" Ppt, Artrv/feid.	Favorable Normal Unfavorable	1,300 900 700	Idaho fescue----- Bluebunch wheatgrass----- Mountain big sagebrush----- Arrowleaf balsamroot----- Lupine-----	25 25 20 5 5
Elkcreek-----	010ay004i, Loamy 12-16" Ppt, Artrv/feid.	Favorable Normal Unfavorable	1,200 900 750	Idaho fescue----- Bluebunch wheatgrass----- Mountain big sagebrush----- Lupine----- Arrowleaf balsamroot-----	25 15 15 10 5
154, 156----- Timmerman	011xy014i, Sandy Loam 8-12" Ppt, Artrw/orhy.	Favorable Normal Unfavorable	1,000 600 350	Wyoming big sagebrush----- Indian ricegrass----- Thurber needlegrass----- Bottlebrush squirreltail----- Sandberg bluegrass-----	35 20 15 5 5
157*: Trevino-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 300	Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Rabbitbrush-----	35 30 5 5 5
Garbutt-----	011xy010i, Calcareous Loam 7-10" Ppt, Atco/arsp/orhy/stth2.	Favorable Normal Unfavorable	700 500 250	Shadscale----- Bud sagebrush----- Indian ricegrass----- Thurber needlegrass----- Bottlebrush squirreltail----- Sandberg bluegrass-----	25 20 15 10 5 5
Weso-----	011xy010i, Calcareous Loam 7-10" Ppt, Atco/arsp/orhy/stth2.	Favorable Normal Unfavorable	700 500 250	Shadscale----- Bud sagebrush----- Indian ricegrass----- Thurber needlegrass----- Bottlebrush squirreltail----- Sandberg bluegrass-----	25 20 15 10 5 5
158*: Trevino-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 300	Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Rabbitbrush-----	35 30 5 5 5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site	Total production		Characteristic vegetation	Compo- sition
		Kind of year	Dry weight Lb/acre		
158*: Minidoka-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable	700	Wyoming big sagebrush-----	35
		Normal	500	Thurber needlegrass-----	30
		Unfavorable	300	Bottlebrush squirreltail-----	5
				Sandberg bluegrass-----	5
				Rabbitbrush-----	5
159*: Trevino-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable	700	Wyoming big sagebrush-----	35
		Normal	500	Thurber needlegrass-----	30
		Unfavorable	300	Sandberg bluegrass-----	5
				Bottlebrush squirreltail-----	5
				Rabbitbrush-----	5
Rock outcrop.					
160*: Trosi-----	011xy001i, Loamy 10-12" Ppt, Artrw/agsp.	Favorable	1,100	Bluebunch wheatgrass-----	25
		Normal	750	Wyoming big sagebrush-----	25
		Unfavorable	400	Thurber needlegrass-----	15
				Bottlebrush squirreltail-----	5
				Sandberg bluegrass-----	5
				Arrowleaf balsamroot-----	5
Chilcott-----	011xy001i, Loamy 10-12" Ppt, Artrw/agsp.	Favorable	1,100	Bluebunch wheatgrass-----	25
		Normal	750	Wyoming big sagebrush-----	25
		Unfavorable	400	Thurber needlegrass-----	15
				Bottlebrush squirreltail-----	5
				Sandberg bluegrass-----	5
				Arrowleaf balsamroot-----	5
Tenmile-----	011xy001i, Loamy 10-12" Ppt, Artrw/agsp.	Favorable	1,100	Bluebunch wheatgrass-----	25
		Normal	750	Wyoming big sagebrush-----	25
		Unfavorable	400	Thurber needlegrass-----	15
				Sandberg bluegrass-----	5
				Arrowleaf balsamroot-----	5
				Bottlebrush squirreltail-----	5
161, 162----- Truesdale	011xy014i, Sandy Loam 8-12" Ppt, Artrw/orhy.	Favorable	1,000	Wyoming big sagebrush-----	35
		Normal	600	Indian ricegrass-----	20
		Unfavorable	350	Thurber needlegrass-----	15
				Sandberg bluegrass-----	5
				Bottlebrush squirreltail-----	5
163----- Typic Torriorthents	011xy010i, Calcareous Loam 7-10" Ppt, Atco/arsp/orhy/stth2.	Favorable	700	Shadscale-----	25
		Normal	500	Bud sagebrush-----	20
		Unfavorable	250	Indian ricegrass-----	15
				Thurber needlegrass-----	10
				Bottlebrush squirreltail-----	5
				Sandberg bluegrass-----	5
164*: Typic Torriorthents----	011xy010i, Calcareous Loam 7-10" Ppt, Atco/arsp/orhy/stth2.	Favorable	700	Shadscale-----	25
		Normal	500	Bud sagebrush-----	20
		Unfavorable	250	Indian ricegrass-----	15
				Thurber needlegrass-----	10
				Bottlebrush squirreltail-----	5
				Sandberg bluegrass-----	5
Badland.					

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight Lb/acre		
165*: Typic Torriorthents----	011xy010i, Calcareous Loam 7-10" Ppt, Atco/arsp/orhy/stth2.	Favorable Normal Unfavorable	700 500 250	Shadscale----- Bud sagebrush----- Indian ricegrass----- Thurber needlegrass----- Bottlebrush squirreltail----- Sandberg bluegrass-----	25 20 15 10 5 5
Rubble land.					
167, 168----- Vanderhoff	011xy010i, Calcareous Loam 7-10" Ppt, Atco/arsp/orhy/stth2.	Favorable Normal Unfavorable	700 500 250	Shadscale----- Bud sagebrush----- Indian ricegrass----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail-----	25 20 15 10 5 5
169*: Vanderhoff-----	011xy010i, Calcareous Loam 7-10" Ppt, Atco/arsp/orhy/stth2.	Favorable Normal Unfavorable	700 500 250	Shadscale----- Bud sagebrush----- Indian ricegrass----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail-----	25 20 15 10 5 5
Buko-----	011xy014i, Sandy Loam 8-12" Ppt, Artrw/orhy.	Favorable Normal Unfavorable	1,000 600 350	Wyoming big sagebrush----- Indian ricegrass----- Thurber needlegrass----- Bottlebrush squirreltail----- Sandberg bluegrass-----	35 20 15 5 5
Loray-----	011xy010i, Calcareous Loam 7-10" Ppt, Atco/arsp/orhy/stth2.	Favorable Normal Unfavorable	--- --- ---		
170----- Vining	011xy014i, Sandy Loam 8-12" Ppt, Artrw/orhy.	Favorable Normal Unfavorable	1,000 600 350	Wyoming big sagebrush----- Indian ricegrass----- Thurber needlegrass----- Bottlebrush squirreltail----- Sandberg bluegrass-----	35 20 15 5 5
171*: Willhill-----	025xy019i, Loamy 10-13" Ppt, Artrw/agsp.	Favorable Normal Unfavorable	1,100 750 400	Bluebunch wheatgrass----- Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Arrowleaf balsamroot-----	35 25 5 5 5 5
Cottle-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 300	Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Arrowleaf balsamroot----- Dwarf green rabbitbrush-----	35 30 5 5 5 5

See footnote at end of table.

TABLE 6.--RANGELAND PRODUCTIVITY AND CHARACTERISTIC PLANT COMMUNITIES--Continued

Soil name and map symbol	Range site	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight lb/acre		Pct
172*: Xeric Torriorthents----	011xy014i, Sandy Loam 8-12" Ppt, Artrw/orhy.	Favorable Normal Unfavorable	900 600 350	Wyoming big sagebrush----- Indian ricegrass----- Thurber needlegrass----- Bottlebrush squirreltail----- Sandberg bluegrass-----	30 20 15 7 5
Xerollic Camborthids-----	011xy014i, Sandy Loam 8-12" Ppt, Artrw/orhy.	Favorable Normal Unfavorable	1,000 600 350	Wyoming big sagebrush----- Indian ricegrass----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail-----	35 20 15 5 5
173*: Xeric Torriorthents----	011xy014i, Sandy Loam 8-12" Ppt, Artrw/orhy.	Favorable Normal Unfavorable	900 600 350	Wyoming big sagebrush----- Indian ricegrass----- Thurber needlegrass----- Bottlebrush squirreltail----- Sandberg bluegrass-----	30 20 15 7 5
Xerollic Camborthids-----	011xy003i, Loamy 8-10" Ppt, Artrw/stth2.	Favorable Normal Unfavorable	700 500 300	Wyoming big sagebrush----- Thurber needlegrass----- Sandberg bluegrass----- Bottlebrush squirreltail----- Rabbitbrush-----	35 30 5 5 5
174----- Yuttrue	010ay007i, Shallow Stony Loam 8-16" Ppt, Arar8/agsp.	Favorable Normal Unfavorable	650 500 300	Low sagebrush----- Bluebunch wheatgrass----- Sandberg bluegrass----- Idaho fescue----- Phlox----- Bigleaf lupine----- Tall green rabbitbrush-----	30 25 10 5 5 5 5

\* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 7.--WINDBREAKS AND ENVIRONMENTAL PLANTINGS

(The symbol < means less than; > means more than. Absence of an entry indicates that trees generally do not grow to the given height on that soil. Only the soils suited to windbreaks and environmental plantings are listed)

Soil name and map symbol	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
1, 2, 3----- Abgese	Cotoneaster, desert bitterbrush.	American plum, blueberry elder.	Russian olive, Siberian crabapple.	Jeffrey pine, green ash.	American elm, Lombardy poplar.
4----- Arbidge	---	Siberian peashrub, lilac, Nanking cherry, Peking cotoneaster.	Rocky Mountain juniper.	Russian olive-----	Idahybrid poplar.
7, 8----- Bahem	European privet---	Siberian peashrub, lilac, Nanking cherry, Peking cotoneaster.	Rocky Mountain juniper.	---	Russian olive, golden willow, blue spruce, idahybrid poplar, Norway spruce, Scotch pine.
11----- Bram	---	Tatarian honeysuckle, Nanking cherry, lilac, Siberian peashrub.	Rocky Mountain juniper.	Blue spruce, green ash, Norway spruce, Russian olive.	Scotch pine, idahybrid poplar.
13----- Brinegar	Peking cotoneaster, European privet.	Siberian peashrub, lilac, Nanking cherry.	Rocky Mountain juniper.	Russian olive, golden willow, blue spruce.	Scotch pine, Norway spruce, idahybrid poplar.
21----- Buko	Peking cotoneaster, European privet.	Siberian peashrub, lilac, Nanking cherry, Rocky Mountain juniper.	---	Golden willow, Russian olive, blue spruce.	Norway spruce, idahybrid poplar, Scotch pine.
23----- Chardoton	---	Siberian peashrub, lilac, Nanking cherry, Peking cotoneaster, European privet.	Rocky Mountain juniper.	---	Russian olive, Scotch pine, blue spruce, golden willow, idahybrid poplar, Norway spruce.
24----- Chilcott	---	European privet, lilac, Nanking cherry, Peking cotoneaster, Siberian peashrub.	Rocky Mountain juniper.	---	Russian olive, idahybrid poplar, golden willow, Scotch pine, Norway spruce, blue spruce.
27*: Chilcott-----	---	European privet, lilac, Nanking cherry, Peking cotoneaster, Siberian peashrub.	Rocky Mountain juniper.	---	Russian olive, idahybrid poplar, golden willow, Scotch pine, Norway spruce, blue spruce.

See footnote at end of table.

TABLE 7.--WINDBREAKS AND ENVIRONMENTAL PLANTINGS---Continued

Soil name and map symbol	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
27*: Elijah-----	---	Siberian peashrub, lilac, Nanking cherry, Peking cotoneaster.	Rocky Mountain juniper.	---	Russian olive, golden willow, black locust, idahybrid poplar, blue spruce, Scotch pine, Norway spruce.
29*: Chilcott-----	---	European privet, lilac, Nanking cherry, Peking cotoneaster, Siberian peashrub.	Rocky Mountain juniper.	---	Russian olive, idahybrid poplar, golden willow, Scotch pine, Norway spruce, blue spruce.
Power-----	---	Lilac, Peking cotoneaster, Nanking cherry, European privet, Siberian peashrub, Nanking cherry.	Rocky Mountain juniper.	---	Russian olive, Norway spruce, golden willow, idahybrid poplar, Scotch pine.
32*: Colthorp.					
Chilcott-----	---	European privet, lilac, Nanking cherry, Peking cotoneaster, Siberian peashrub.	Rocky Mountain juniper.	---	Russian olive, idahybrid poplar, golden willow, Scotch pine, Norway spruce, blue spruce.
44, 45----- Davey	European privet---	Siberian peashrub, lilac, Tatarian honeysuckle, Nanking cherry.	Rocky Mountain juniper.	Russian olive, blue spruce, idahybrid poplar.	Scotch pine, ponderosa pine.
46*: Davey-----	European privet---	Siberian peashrub, lilac, Tatarian honeysuckle, Nanking cherry.	Rocky Mountain juniper.	Russian olive, blue spruce, idahybrid poplar.	Scotch pine, ponderosa pine.
Buko-----	Peking cotoneaster, European privet.	Siberian peashrub, lilac, Nanking cherry, Rocky Mountain juniper.	---	Golden willow, Russian olive, blue spruce.	Norway spruce, idahybrid poplar, Scotch pine.
48*: Davey-----	European privet---	Siberian peashrub, lilac, Tatarian honeysuckle, Nanking cherry.	Rocky Mountain juniper.	Russian olive, blue spruce, idahybrid poplar.	Scotch pine, ponderosa pine.
Quincy-----	Peking cotoneaster	Siberian peashrub, honeysuckle.	Lilac, blue spruce, northern whitecedar, Rocky Mountain juniper.	Russian olive, golden willow.	Lombardy poplar, Austrian pine, green ash.

See footnote at end of table.



TABLE 7.--WINDBREAKS AND ENVIRONMENTAL PLANTINGS--Continued

Soil name and map symbol	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
49*: Davey-----	European privet---	Siberian peashrub, lilac, Tatarian honeysuckle, Nanking cherry.	Rocky Mountain juniper.	Russian olive, blue spruce, idahybrid poplar.	Scotch pine, ponderosa pine.
Vanderhoff.					
50, 51----- Dors	Peking cotoneaster, European privet.	Siberian peashrub, lilac, Nanking cherry.	Rocky Mountain juniper.	Russian olive, idahybrid poplar, blue spruce.	Scotch pine.
52*: Dors-----	Peking cotoneaster, European privet.	Siberian peashrub, lilac, Nanking cherry.	Rocky Mountain juniper.	Russian olive, idahybrid poplar, blue spruce.	Scotch pine.
Loray-----	Nanking cherry, Peking cotoneaster.	Rocky Mountain juniper, lilac, Siberian peashrub.	Idahybrid poplar	Russian olive-----	---
54----- Elijah	---	Siberian peashrub, lilac, Nanking cherry, Peking cotoneaster.	Rocky Mountain juniper.	---	Russian olive, golden willow, black locust, idahybrid poplar, blue spruce, Scotch pine, Norway spruce.
56*: Elijah-----	---	Siberian peashrub, lilac, Nanking cherry, Peking cotoneaster.	Rocky Mountain juniper.	---	Russian olive, golden willow, black locust, idahybrid poplar, blue spruce, Scotch pine, Norway spruce.
Purdam-----	---	Siberian peashrub, lilac, European privet, Nanking cherry, Peking cotoneaster.	Rocky Mountain juniper.	---	Russian olive, golden willow, blue spruce, idahybrid poplar, Scotch pine, Norway spruce.
60----- Fluvaquents	Peking cotoneaster	---	Norway spruce-----	Idahybrid poplar, golden willow, Russian olive.	---
65, 66----- Garbutt	---	Siberian peashrub, lilac, Nanking cherry, Peking cotoneaster, European privet.	Rocky Mountain juniper.	---	Russian olive, Scotch pine, idahybrid poplar, golden willow, Norway spruce, blue spruce.
67*: Garbutt.					

See footnote at end of table.

TABLE 7.--WINDBREAKS AND ENVIRONMENTAL PLANTINGS--Continued

Soil name and map symbol	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
67*: Weso-----	Cotoneaster, pyracantha.	Antelope bitterbrush, lilac.	Rocky Mountain juniper, silver buffaloberry.	Golden willow, green ash.	Lombardy poplar, Siouxland cottonwood.
68*: Garbutt.					
Weso-----	Cotoneaster, pyracantha.	Antelope bitterbrush, lilac.	Rocky Mountain juniper, silver buffaloberry.	Golden willow, green ash.	Lombardy poplar, Siouxland cottonwood.
Trevino.					
70----- Grandview	---	Peking cotoneaster, Siberian peashrub, lilac, Nanking cherry, European privet.	Rocky Mountain juniper.	---	Idahybrid poplar, Russian olive, golden willow, Norway spruce, Scotch pine, blue spruce.
71*: Grandview-----	---	Peking cotoneaster, lilac, Siberian peashrub, European privet, Nanking cherry.	Rocky Mountain juniper.	---	Russian olive, Scotch pine, blue spruce, Norway spruce, golden willow, idahybrid poplar.
Garbutt-----	---	Siberian peashrub, lilac, Nanking cherry, Peking cotoneaster, European privet.	Rocky Mountain juniper.	---	Russian olive, Scotch pine, idahybrid poplar, golden willow, Norway spruce, blue spruce.
73----- Greenleaf	---	Siberian peashrub, lilac, Nanking cherry, Peking cotoneaster, European privet.	Rocky Mountain juniper.	---	Russian olive, golden willow, blue spruce, Norway spruce, idahybrid poplar, Scotch pine.
74*: Greenleaf-----	---	Siberian peashrub, lilac, Nanking cherry, Peking cotoneaster, European privet.	Rocky Mountain juniper.	---	Russian olive, golden willow, blue spruce, Norway spruce, idahybrid poplar, Scotch pine.
Shano-----	European privet, Peking cotoneaster.	Siberian peashrub, Nanking cherry, lilac.	Rocky Mountain juniper.	Russian olive, idahybrid poplar, blue spruce.	Scotch pine.
78*: Haw.					

See footnote at end of table.

TABLE 7.--WINDBREAKS AND ENVIRONMENTAL PLANTINGS--Continued

Soil name and map symbol	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
78*: Lankbush-----	Nanking cherry----	Siberian peashrub, Rocky Mountain juniper, lilac.	---	Russian olive, idahybrid poplar, green ash, black locust.	---
79----- Hawsley	Peking cotoneaster, European privet.	Lilac, Siberian peashrub, Nanking cherry.	Rocky Mountain juniper.	Russian olive, idahybrid poplar, blue spruce.	Scotch pine.
81----- Houk	Peking cotoneaster, Nanking cherry, European privet.	Siberian peashrub, lilac.	Golden willow, Norway spruce, Rocky Mountain juniper.	Idahybrid poplar, Russian olive, Scotch pine, blue spruce.	---
85----- Jacquith	Peking cotoneaster, European privet.	Siberian peashrub, Nanking cherry, lilac.	Rocky Mountain juniper.	Blue spruce, Russian olive, idahybrid poplar.	Scotch pine.
90----- Lankbush	Nanking cherry----	Siberian peashrub, Rocky Mountain juniper, lilac.	---	Russian olive, idahybrid poplar, green ash, black locust.	---
92*: Lankbush-----	Nanking cherry----	Siberian peashrub, Rocky Mountain juniper, lilac.	---	Russian olive, idahybrid poplar, green ash, black locust.	---
Jenness-----	---	Lilac, Peking cotoneaster, Siberian peashrub, Nanking cherry, European privet.	Rocky Mountain juniper.	---	Russian olive, idahybrid poplar, golden willow, Scotch pine, Norway spruce, blue spruce.
93----- Lanktree	---	European privet, Siberian peashrub, lilac, Peking cotoneaster, Nanking cherry.	Rocky Mountain juniper.	---	Russian olive, golden willow, idahybrid poplar, Scotch pine, Norway spruce, blue spruce.
94*: Lanktree-----	---	European privet, Siberian peashrub, lilac, Peking cotoneaster, Nanking cherry.	Rocky Mountain juniper.	---	Russian olive, golden willow, idahybrid poplar, Scotch pine, Norway spruce, blue spruce.
Chilcott-----	---	European privet, lilac, Nanking cherry, Peking cotoneaster, Siberian peashrub.	Rocky Mountain juniper.	---	Russian olive, idahybrid poplar, golden willow, Scotch pine, Norway spruce, blue spruce.
95----- Letha	---	Siberian peashrub, lilac.	Rocky Mountain juniper.	Norway spruce-----	Golden willow.

See footnote at end of table.

TABLE 7.--WINDBREAKS AND ENVIRONMENTAL PLANTINGS--Continued

Soil name and map symbol	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
96----- Letha	---	Lilac, Siberian peashrub.	Rocky Mountain juniper.	Golden willow, Norway spruce, Russian olive, blue spruce.	Idahybrid poplar, Scotch pine.
97*: Letha-----	---	Lilac, Siberian peashrub.	Rocky Mountain juniper.	Golden willow, Norway spruce, Russian olive, blue spruce.	Idahybrid poplar, Scotch pine.
Baldock.					
98----- Loray	Nanking cherry, Peking cotoneaster.	Rocky Mountain juniper, lilac, Siberian peashrub.	Idahybrid poplar	Russian olive-----	---
99*: Loray-----	Nanking cherry, Peking cotoneaster.	Rocky Mountain juniper, lilac, Siberian peashrub.	Idahybrid poplar	Russian olive-----	---
Dors.					
100----- Mazuma	---	Lilac, Peking cotoneaster, Nanking cherry.	Rocky Mountain juniper, Norway spruce.	Russian olive, green ash.	---
101*: Mazuma-----	---	Lilac, Peking cotoneaster, Nanking cherry.	Rocky Mountain juniper, Norway spruce.	Russian olive, green ash.	---
Hawsley-----	Peking cotoneaster, European privet.	Lilac, Siberian peashrub, Nanking cherry.	Rocky Mountain juniper.	Russian olive, idahybrid poplar, blue spruce.	Scotch pine.
103*, 104*: Minidoka-----	Peking cotoneaster, European privet.	Rocky Mountain juniper, Siberian peashrub, lilac, Nanking cherry.	---	Russian olive, golden willow, Norway spruce, blue spruce.	Scotch pine, idahybrid poplar.
Minveno.					
107*: Minveno.					
Minidoka-----	Peking cotoneaster, European privet.	Rocky Mountain juniper, Siberian peashrub, lilac, Nanking cherry.	---	Russian olive, golden willow, Norway spruce, blue spruce.	Scotch pine, idahybrid poplar.
108*: Monroe.					

See footnote at end of table.

TABLE 7.--WINDBREAKS AND ENVIRONMENTAL PLANTINGS--Continued

Soil name and map symbol	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
108*: Jenness-----	---	Lilac, Peking cotoneaster, Siberian peashrub, Nanking cherry, European privet.	Rocky Mountain juniper.	---	Russian olive, idahybrid poplar, golden willow, Scotch pine, Norway spruce, blue spruce.
109*: Monroe.					
Goose Creek-----	Nanking cherry, Peking cotoneaster.	Siberian peashrub, Rocky Mountain juniper, lilac, Siberian peashrub.	Golden willow-----	Russian olive, idahybrid poplar, Norway spruce, blue spruce.	Scotch pine.
111----- Oland	---	Siberian peashrub, lilac, Amur honeysuckle, Russian olive.	Siberian elm, black locust, ponderosa pine.	---	---
112----- Ornea	---	Lilac, Peking cotoneaster, Siberian peashrub, Nanking cherry, European privet.	Rocky Mountain juniper.	---	Russian olive, idahybrid poplar, golden willow, Scotch pine, Norway spruce, blue spruce.
113*: OwseI-----	Peking cotoneaster, European privet.	Siberian peashrub, Nanking cherry, lilac, Rocky Mountain juniper.	---	Russian olive, golden willow, Norway spruce.	Scotch pine.
Purdam-----	---	Siberian peashrub, lilac, European privet, Nanking cherry, Peking cotoneaster.	Rocky Mountain juniper.	---	Russian olive, golden willow, blue spruce, idahybrid poplar, Scotch pine, Norway spruce.
114*: Perazzo.					
Ornea-----	---	Lilac, Peking cotoneaster, Siberian peashrub, Nanking cherry, European privet.	Rocky Mountain juniper.	---	Russian olive, idahybrid poplar, golden willow, Scotch pine, Norway spruce, blue spruce.
Abgese-----	Cotoneaster, desert bitterbrush.	American plum, blueberry elder.	Russian olive, Siberian crabapple.	Jeffrey pine, green ash.	American elm, Lombardy poplar.

See footnote at end of table.

TABLE 7.--WINDBREAKS AND ENVIRONMENTAL PLANTINGS--Continued

Soil name and map symbol	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
116----- Power	---	Lilac, Peking cotoneaster, Nanking cherry, European privet, Siberian peashrub, Nanking cherry.	Rocky Mountain juniper.	---	Russian olive, Norway spruce, golden willow, idahybrid poplar, Scotch pine.
117*: Power-----	---	Lilac, Peking cotoneaster, Nanking cherry, European privet, Siberian peashrub, Nanking cherry.	Rocky Mountain juniper.	---	Russian olive, Norway spruce, golden willow, idahybrid poplar, Scotch pine.
Chardoton-----	---	Siberian peashrub, lilac, Nanking cherry, Peking cotoneaster, European privet.	Rocky Mountain juniper.	---	Russian olive, Scotch pine, blue spruce, golden willow, idahybrid poplar, Norway spruce.
118*: Power-----	---	Lilac, Peking cotoneaster, Nanking cherry, European privet, Siberian peashrub, Nanking cherry.	Rocky Mountain juniper.	---	Russian olive, Norway spruce, golden willow, idahybrid poplar, Scotch pine.
Jenness-----	---	Lilac, Peking cotoneaster, Siberian peashrub, Nanking cherry, European privet.	Rocky Mountain juniper.	---	Russian olive, idahybrid poplar, golden willow, Scotch pine, Norway spruce, blue spruce.
119*: Power-----	---	Lilac, Peking cotoneaster, Nanking cherry, European privet, Siberian peashrub, Nanking cherry.	Rocky Mountain juniper.	---	Russian olive, Norway spruce, golden willow, idahybrid poplar, Scotch pine.
Purdam-----	---	Siberian peashrub, lilac, European privet, Nanking cherry, Peking cotoneaster.	Rocky Mountain juniper.	---	Russian olive, golden willow, blue spruce, idahybrid poplar, Scotch pine, Norway spruce.

See footnote at end of table.

TABLE 7.--WINDBREAKS AND ENVIRONMENTAL PLANTINGS--Continued

Soil name and map symbol	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
120, 121----- Purdam	---	Siberian peashrub, lilac, European privet, Nanking cherry, Peking cotoneaster.	Rocky Mountain juniper.	---	Russian olive, golden willow, blue spruce, idahybrid poplar, Scotch pine, Norway spruce.
124----- Quincy	Peking cotoneaster	Siberian peashrub, honeysuckle.	Lilac, blue spruce, northern whitecedar, Rocky Mountain juniper.	Russian olive, golden willow.	Lombardy poplar, Austrian pine, green ash.
127*: Rainey. Schoolhouse. Oland-----	---	Siberian peashrub, lilac, Amur honeysuckle, Russian olive.	Siberian elm, black locust, ponderosa pine.	---	---
130*: Roanhide. Bauscher-----	Nanking cherry, Peking cotoneaster, European privet.	Siberian peashrub, lilac.	Blue spruce-----	Russian olive, Scotch pine, golden willow, Norway spruce.	Idahybrid poplar.
131*: Roanhide. Bauscher-----	Nanking cherry, Peking cotoneaster, European privet.	Siberian peashrub, lilac.	Blue spruce-----	Russian olive, Scotch pine, golden willow, Norway spruce.	Idahybrid poplar.
Schoolhouse.					
133, 134----- Royal	Peking cotoneaster, European privet.	Siberian peashrub, Nanking cherry, lilac.	Rocky Mountain juniper.	Russian olive, blue spruce.	Scotch pine.
135*: Royal-----	Peking cotoneaster, European privet.	Siberian peashrub, Nanking cherry, lilac.	Rocky Mountain juniper.	Russian olive, blue spruce.	Scotch pine.
Davey-----	European privet---	Siberian peashrub, lilac, Tatarian honeysuckle, Nanking cherry.	Rocky Mountain juniper.	Russian olive, blue spruce, idahybrid poplar.	Scotch pine, ponderosa pine.
137*: Royal-----	Peking cotoneaster, European privet.	Siberian peashrub, Nanking cherry, lilac.	Rocky Mountain juniper.	Russian olive, blue spruce.	Scotch pine.

See footnote at end of table.

TABLE 7.--WINDBREAKS AND ENVIRONMENTAL PLANTINGS--Continued

Soil name and map symbol	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
137*: Shano-----	European privet, Peking cotoneaster.	Siberian peashrub, Nanking cherry, lilac.	Rocky Mountain juniper.	Russian olive, idahybrid poplar, blue spruce.	Scotch pine.
Rock outcrop.					
138*: Royal-----	Peking cotoneaster, European privet.	Siberian peashrub, Nanking cherry, lilac.	Rocky Mountain juniper.	Russian olive, blue spruce.	Scotch pine.
Truesdale-----	---	Lilac, Siberian peashrub, Peking cotoneaster, Nanking cherry, European privet.	Rocky Mountain juniper.	---	Russian olive, golden willow, idahybrid poplar, Scotch pine, Norway spruce, blue spruce.
141----- Scism	---	Siberian peashrub, Nanking cherry, lilac, Peking cotoneaster, European privet.	Rocky Mountain juniper.	---	Russian olive, idahybrid poplar, golden willow, Scotch pine, Norway spruce, blue spruce.
142----- Scoon	Nanking cherry, Peking cotoneaster, European privet.	Siberian peashrub, lilac, Tatarian honeysuckle.	Golden willow, Norway spruce.	Russian olive, Scotch pine, green ash, Austrian pine.	---
143----- Shano	European privet, Peking cotoneaster.	Siberian peashrub, Nanking cherry, lilac.	Rocky Mountain juniper.	Russian olive, idahybrid poplar, blue spruce.	Scotch pine.
144*: Shano-----	European privet, Peking cotoneaster.	Siberian peashrub, Nanking cherry, lilac.	Rocky Mountain juniper.	Russian olive, idahybrid poplar, blue spruce.	Scotch pine.
Owsel-----	Peking cotoneaster, European privet.	Siberian peashrub, Nanking cherry, lilac, Rocky Mountain juniper.	---	Russian olive, golden willow, Norway spruce.	Scotch pine.
145*: Shano-----	European privet, Peking cotoneaster.	Siberian peashrub, Nanking cherry, lilac.	Rocky Mountain juniper.	Russian olive, idahybrid poplar, blue spruce.	Scotch pine.
Truesdale-----	---	Lilac, Siberian peashrub, Peking cotoneaster, Nanking cherry, European privet.	Rocky Mountain juniper.	---	Russian olive, golden willow, idahybrid poplar, Scotch pine, Norway spruce, blue spruce.
147*: Shoofly.					

See footnote at end of table.



TABLE 7.--WINDBREAKS AND ENVIRONMENTAL PLANTINGS--Continued

Soil name and map symbol	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
147*: Ornea-----	---	Lilac, Peking cotoneaster, Siberian peashrub, Nanking cherry, European privet.	Rocky Mountain juniper.	---	Russian olive, idahybrid poplar, golden willow, Scotch pine, Norway spruce, blue spruce.
150*: Simonton.					
Bauscher-----	Nanking cherry, Peking cotoneaster, European privet.	Siberian peashrub, lilac.	Blue spruce-----	Russian olive, Scotch pine, golden willow, Norway spruce.	Idahybrid poplar.
155, 156----- Timmerman	---	Siberian peashrub, Peking cotoneaster, lilac, European privet, Nanking cherry.	Rocky Mountain juniper.	Russian olive, golden willow, blue spruce.	Norway spruce, idahybrid poplar, Scotch pine.
157*: Trevino.					
Garbutt.					
Weso-----	Cotoneaster, pyracantha.	Antelope bitterbrush, lilac.	Rocky Mountain juniper, silver buffaloberry.	Golden willow, green ash.	Lombardy poplar, Siouxland cottonwood.
161, 162----- Truesdale	---	Lilac, Siberian peashrub, Peking cotoneaster, Nanking cherry, European privet.	Rocky Mountain juniper.	---	Russian olive, golden willow, idahybrid poplar, Scotch pine, Norway spruce, blue spruce.
163----- Typic Torriorthents	---	Siberian peashrub, lilac, Nanking cherry, Peking cotoneaster, European privet.	Rocky Mountain juniper.	---	Russian olive, golden willow, idahybrid poplar, Scotch pine, Norway spruce, blue spruce.

\* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 8.--BUILDING SITE DEVELOPMENT

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
1----- Abgese	Severe: cutbanks cave.	Slight-----	Slight-----	Moderate: slope.	Moderate: frost action.	Slight.
2----- Abgese	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
3----- Abgese	Severe: cutbanks cave.	Slight-----	Slight-----	Slight-----	Moderate: frost action.	Moderate: droughty.
4----- Arbridge	Moderate: cemented pan.	Slight-----	Moderate: cemented pan.	Slight-----	Moderate: frost action.	Moderate: cemented pan.
5*: Arbridge-----	Moderate: cemented pan.	Slight-----	Moderate: cemented pan.	Moderate: slope.	Moderate: frost action.	Moderate: cemented pan.
Buko-----	Severe: cutbanks cave.	Slight-----	Slight-----	Moderate: slope.	Moderate: frost action.	Moderate: droughty.
6*: Badge-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Immiant-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
Rubble land.						
7----- Bahem	Slight-----	Slight-----	Slight-----	Slight-----	Moderate: frost action.	Slight.
8----- Bahem	Slight-----	Slight-----	Slight-----	Moderate: slope.	Moderate: frost action.	Slight.
9*: Bahem-----	Slight-----	Slight-----	Slight-----	Slight-----	Moderate: frost action.	Slight.
Minidoka-----	Severe: cemented pan.	Moderate: cemented pan.	Severe: cemented pan.	Moderate: cemented pan.	Moderate: cemented pan.	Moderate: cemented pan.
Trevino-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
10----- Baldock	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: frost action.	Severe: excess salt.
11----- Bram	Moderate: wetness.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding, frost action.	Severe: excess salt.

See footnote at end of table.

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
12----- Bramwell	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: low strength.	Severe: excess salt.
13----- Brinegar	Moderate: wetness.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding, frost action.	Slight.
14*: Broad Canyon-----	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Coski-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
15*: Broad Canyon-----	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Grousecreek-----	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: droughty, slope.
16*: Broad Canyon-----	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Switchback-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
17----- Brownlee	Slight-----	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Moderate: low strength, frost action.	Slight.
18*: Brownlee-----	Moderate: slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Moderate: low strength, slope, frost action.	Moderate: slope.
Immiant-----	Severe: depth to rock.	Moderate: shrink-swell, slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, shrink-swell, slope.	Moderate: small stones, slope, depth to rock.
19*: Brownlee-----	Moderate: slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Moderate: low strength, slope, frost action.	Moderate: slope.
Van Dusen-----	Severe: cutbanks cave.	Moderate: shrink-swell, slope.	Moderate: slope.	Severe: slope.	Moderate: low strength, slope, frost action.	Moderate: slope.

See footnote at end of table.

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
20*: Bruncan-----	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Severe: large stones, depth to rock.
Troughs-----	Severe: depth to rock, cemented pan, large stones.	Severe: cemented pan, large stones.	Severe: depth to rock, cemented pan.	Severe: cemented pan, large stones.	Severe: cemented pan, large stones.	Severe: large stones, cemented pan.
21----- Buko	Severe: cutbanks cave.	Slight-----	Slight-----	Slight-----	Moderate: frost action.	Moderate: droughty.
22----- Buko	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope, frost action.	Moderate: droughty, slope.
23----- Chardoton	Moderate: too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Slight.
24----- Chilcott	Severe: cemented pan, cutbanks cave.	Severe: shrink-swell.	Severe: cemented pan.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Moderate: cemented pan.
25----- Chilcott	Severe: cemented pan.	Moderate: shrink-swell, cemented pan.	Severe: cemented pan.	Moderate: shrink-swell, slope, cemented pan.	Severe: low strength.	Moderate: large stones, cemented pan.
26*: Chilcott-----	Severe: cemented pan.	Moderate: shrink-swell, cemented pan.	Severe: cemented pan.	Moderate: shrink-swell, slope, cemented pan.	Severe: low strength.	Moderate: large stones, cemented pan.
Day-----	Severe: cutbanks cave.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength.	Severe: too clayey.
Rock outcrop.						
27*: Chilcott-----	Severe: cemented pan, cutbanks cave.	Severe: shrink-swell.	Severe: cemented pan.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Moderate: cemented pan.
Elijah-----	Severe: cemented pan, cutbanks cave.	Moderate: shrink-swell, cemented pan.	Severe: cemented pan.	Moderate: shrink-swell, slope, cemented pan.	Severe: low strength.	Moderate: cemented pan.
28*: Chilcott-----	Severe: cemented pan.	Moderate: shrink-swell, cemented pan.	Severe: cemented pan.	Moderate: shrink-swell, slope, cemented pan.	Severe: low strength.	Moderate: large stones, cemented pan.
Kunaton-----	Severe: depth to rock, cemented pan.	Severe: cemented pan.	Severe: depth to rock, cemented pan.	Severe: cemented pan.	Severe: cemented pan, low strength.	Severe: cemented pan.

See footnote at end of table.

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
28*: Chardoton-----	Moderate: too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Slight.
29*: Chilcott-----	Severe: cemented pan, cutbanks cave.	Severe: shrink-swell.	Severe: cemented pan.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Moderate: cemented pan.
Power-----	Slight-----	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Moderate: shrink-swell, low strength.	Slight.
30*. Cinder land						
31----- Colthorp	Severe: depth to rock, cemented pan.	Severe: cemented pan.	Severe: depth to rock, cemented pan.	Severe: cemented pan.	Severe: cemented pan, low strength.	Severe: cemented pan.
32*: Colthorp-----	Severe: depth to rock, cemented pan.	Severe: cemented pan.	Severe: depth to rock, cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.
Chilcott-----	Severe: cemented pan, cutbanks cave.	Severe: shrink-swell.	Severe: cemented pan.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Moderate: cemented pan.
33*: Colthorp-----	Severe: depth to rock, cemented pan.	Severe: cemented pan.	Severe: depth to rock, cemented pan.	Severe: cemented pan.	Severe: cemented pan, low strength.	Severe: cemented pan.
Kunaton-----	Severe: depth to rock, cemented pan.	Severe: cemented pan.	Severe: depth to rock, cemented pan.	Severe: cemented pan.	Severe: cemented pan, low strength.	Severe: cemented pan.
34*: Colthorp-----	Severe: depth to rock, cemented pan.	Severe: cemented pan.	Severe: depth to rock, cemented pan.	Severe: slope, cemented pan.	Severe: cemented pan, low strength.	Severe: cemented pan.
Kunaton-----	Severe: depth to rock, cemented pan.	Severe: cemented pan.	Severe: depth to rock, cemented pan.	Severe: slope, cemented pan.	Severe: cemented pan, low strength.	Severe: cemented pan.
Rubble land.						
35*: Colthorp-----	Severe: depth to rock, cemented pan.	Severe: cemented pan.	Severe: depth to rock, cemented pan.	Severe: cemented pan.	Severe: cemented pan, low strength.	Severe: cemented pan.
Minveno-----	Severe: depth to rock, cemented pan.	Severe: cemented pan.	Severe: depth to rock, cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.

See footnote at end of table.

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
36*: Colthorp-----  Rock outcrop.	Severe: depth to rock, cemented pan.	Severe: cemented pan.	Severe: depth to rock, cemented pan.	Severe: slope, cemented pan.	Severe: cemented pan, low strength.	Severe: large stones, cemented pan.
37*: Coski-----  Broad Canyon-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
38*: Cottle-----  Sidlake-----	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: large stones, slope, depth to rock.
	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
39*: Cottle-----  Trevino-----  Rock outcrop.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.
	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.
40*: Cottle-----  Willhill-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.
	Severe: depth to rock.	Moderate: slope, depth to rock, large stones.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, slope, large stones.	Moderate: small stones, large stones, slope.
41----- Cowgil	Severe: cutbanks cave.	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: slope.	Moderate: slope, frost action, large stones.	Severe: small stones.
42----- Cowgil	Severe: cutbanks cave.	Moderate: large stones.	Moderate: large stones.	Moderate: large stones.	Moderate: frost action, large stones.	Severe: small stones.
43*: Cowgil-----  Rubble land.	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: small stones, slope.

See footnote at end of table.

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
43*: Rock outcrop.						
44----- Davey	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: droughty, slope.
45----- Davey	Severe: cutbanks cave.	Slight-----	Slight-----	Slight-----	Slight-----	Moderate: droughty.
46*: Davey-----	Severe: cutbanks cave.	Slight-----	Slight-----	Moderate: slope.	Slight-----	Moderate: droughty.
Buko-----	Severe: cutbanks cave.	Slight-----	Slight-----	Moderate: slope.	Moderate: frost action.	Moderate: droughty.
47*: Davey-----	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Mazuma-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: excess salt, slope.
48*: Davey-----	Severe: cutbanks cave.	Slight-----	Slight-----	Moderate: slope.	Slight-----	Moderate: droughty.
Quincy-----	Severe: cutbanks cave.	Slight-----	Slight-----	Moderate: slope.	Slight-----	Moderate: droughty.
49*: Davey-----	Severe: cutbanks cave.	Slight-----	Slight-----	Slight-----	Slight-----	Moderate: droughty.
Vanderhoff-----	Moderate: depth to rock.	Slight-----	Moderate: depth to rock.	Slight-----	Slight-----	Moderate: small stones.
50----- Dors	Severe: cutbanks cave.	Slight-----	Slight-----	Slight-----	Slight-----	Moderate: droughty.
51----- Dors	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: small stones, droughty, slope.
52*: Dors-----	Severe: cutbanks cave.	Slight-----	Slight-----	Slight-----	Slight-----	Moderate: droughty.
Loray-----	Severe: cutbanks cave.	Slight-----	Slight-----	Slight-----	Slight-----	Severe: droughty.
53*. Dune land						
54----- Elijah	Severe: cemented pan, cutbanks cave.	Moderate: shrink-swell, cemented pan.	Severe: cemented pan.	Moderate: shrink-swell, cemented pan.	Severe: low strength.	Moderate: cemented pan.

See footnote at end of table.

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
55----- Elijah	Severe: cemented pan, cutbanks cave.	Moderate: shrink-swell, slope, cemented pan.	Severe: cemented pan.	Severe: slope.	Severe: low strength.	Moderate: slope, cemented pan.
56*: Elijah-----	Severe: cemented pan, cutbanks cave.	Moderate: shrink-swell, cemented pan.	Severe: cemented pan.	Moderate: shrink-swell, slope, cemented pan.	Severe: low strength.	Moderate: cemented pan.
Purdam-----	Severe: cutbanks cave.	Moderate: shrink-swell.	Moderate: cemented pan.	Moderate: shrink-swell, slope.	Severe: low strength.	Moderate: cemented pan.
57*: Elkcreek-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
Demast-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
58*: Elkcreek-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
Gaib-----	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.
Simonton-----	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
59*: Farrot-----	Severe: depth to rock, cutbanks cave, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
Haw-----	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
60----- Fluvaquents	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Severe: frost action.	Moderate: wetness, droughty.
61*: Gaib-----	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: large stones, slope, depth to rock.
Rubble land.						

See footnote at end of table.



TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
62*: Gaib-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.
Elkcreek-----	Severe: depth to rock.	Moderate: slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, low strength, slope.	Moderate: large stones, slope, depth to rock.
Rock outcrop.						
63*: Gaib-----	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.
Elkcreek-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
Simonton-----	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
64*: Gaib-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
Simonton-----	Severe: cutbanks cave.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Moderate: shrink-swell, low strength.	Moderate: large stones.
Rock outcrop.						
65----- Garbutt	Slight-----	Slight-----	Slight-----	Slight-----	Slight-----	Slight.
66----- Garbutt	Slight-----	Slight-----	Slight-----	Moderate: slope.	Slight-----	Slight.
67*: Garbutt-----	Slight-----	Slight-----	Slight-----	Slight-----	Slight-----	Slight.
Weso-----	Severe: cutbanks cave.	Slight-----	Slight-----	Slight-----	Slight-----	Slight.
68*: Garbutt-----	Slight-----	Slight-----	Slight-----	Slight-----	Slight-----	Slight.
Weso-----	Severe: cutbanks cave.	Slight-----	Slight-----	Moderate: slope.	Slight-----	Slight.
Trevino-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
69*: Garbutt-----	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.

See footnote at end of table.

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
69*: Trevino-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.
70----- Grandview	Moderate: wetness.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: low strength, flooding, frost action.	Severe: excess salt.
71*: Grandview-----	Slight-----	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Severe: low strength.	Slight.
Garbutt-----	Slight-----	Slight-----	Slight-----	Slight-----	Slight-----	Slight.
72*: Graylock-----	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Broad Canyon-----	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
73----- Greenleaf	Moderate: cutbanks cave.	Slight-----	Slight-----	Slight-----	Slight-----	Slight.
74*: Greenleaf-----	Moderate: cutbanks cave, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
Shano-----	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
75*: Haplaquolls-----	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding, frost action.	Severe: wetness.
Xerofluvents.						
76*: Harahill-----	Severe: depth to rock.	Moderate: shrink-swell, depth to rock.	Severe: depth to rock.	Moderate: shrink-swell, slope, depth to rock.	Moderate: depth to rock, shrink-swell.	Moderate: small stones.
Willho-----	Severe: cemented pan.	Severe: shrink-swell.	Severe: cemented pan, shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Moderate: cemented pan.
77*: Haw-----	Severe: cutbanks cave.	Moderate: shrink-swell, slope.	Moderate: slope.	Severe: slope.	Moderate: shrink-swell, low strength, slope.	Moderate: slope.

See footnote at end of table.

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
77*: Farrot-----	Severe: depth to rock, cutbanks cave.	Moderate: shrink-swell, slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, shrink-swell, slope.	Moderate: droughty, slope.
78*: Haw-----	Severe: cutbanks cave.	Moderate: shrink-swell, slope.	Moderate: slope.	Severe: slope.	Moderate: shrink-swell, low strength, slope.	Moderate: slope.
Lankbush-----	Severe: cutbanks cave.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Moderate: slope, frost action, shrink-swell.	Moderate: slope.
79----- Hawsley	Severe: cutbanks cave.	Slight-----	Slight-----	Moderate: slope.	Slight-----	Moderate: droughty.
80*: Hotcreek-----	Severe: depth to rock, cemented pan.	Severe: depth to rock.	Severe: depth to rock, cemented pan.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: small stones, large stones, depth to rock.
Troughs-----	Severe: depth to rock, cemented pan.	Severe: cemented pan.	Severe: depth to rock, cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.
81----- Houk	Moderate: too clayey, wetness, flooding.	Severe: flooding, shrink-swell.	Severe: flooding, shrink-swell.	Severe: flooding, shrink-swell.	Severe: shrink-swell, low strength, flooding.	Severe: flooding.
82----- Immiant	Severe: depth to rock.	Moderate: shrink-swell, depth to rock.	Severe: depth to rock.	Moderate: shrink-swell, slope, depth to rock.	Moderate: depth to rock, shrink-swell.	Moderate: small stones, depth to rock.
83*: Immiant-----	Severe: depth to rock.	Moderate: shrink-swell, slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, shrink-swell, slope.	Moderate: small stones, slope, depth to rock.
Ruckles-----	Severe: depth to rock.	Severe: shrink-swell, depth to rock.	Severe: depth to rock, shrink-swell.	Severe: shrink-swell, depth to rock.	Severe: depth to rock, shrink-swell.	Severe: small stones, depth to rock.
Rock outcrop.						
84----- Jacquith	Severe: cutbanks cave.	Moderate: slope.	Moderate: cemented pan, slope.	Severe: slope.	Moderate: slope.	Moderate: droughty, slope, cemented pan.
85----- Jacquith	Severe: cutbanks cave.	Slight-----	Moderate: cemented pan.	Moderate: slope.	Slight-----	Moderate: droughty, cemented pan.

See footnote at end of table.

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
86*: Jacquith-----	Severe: cutbanks cave.	Slight-----	Moderate: cemented pan.	Moderate: slope.	Slight-----	Moderate: droughty, cemented pan.
Quincy-----	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: droughty, slope.
87*: Karcas-----	Severe: depth to rock, cutbanks cave.	Severe: shrink-swell.	Severe: depth to rock, shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength.	Severe: large stones, too clayey.
Day-----	Severe: cutbanks cave.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength.	Severe: too clayey.
Rock outcrop.						
88----- Kunaton	Severe: depth to rock, cemented pan.	Severe: cemented pan.	Severe: depth to rock, cemented pan.	Severe: cemented pan.	Severe: cemented pan, low strength.	Severe: cemented pan.
89*: Kunaton-----	Severe: depth to rock, cemented pan.	Severe: cemented pan.	Severe: depth to rock, cemented pan.	Severe: cemented pan.	Severe: cemented pan, low strength.	Severe: cemented pan.
Chilcott-----	Severe: cemented pan, cutbanks cave.	Severe: shrink-swell.	Severe: cemented pan.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Moderate: cemented pan.
90----- Lankbush	Severe: cutbanks cave.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: frost action, shrink-swell.	Slight.
91*: Lankbush-----	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Lanktree-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
92*: Lankbush-----	Severe: cutbanks cave.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: frost action, shrink-swell.	Slight.
Jenness-----	Severe: cutbanks cave.	Slight-----	Slight-----	Slight-----	Slight-----	Slight.
93----- Lanktree	Moderate: too clayey.	Slight-----	Slight-----	Slight-----	Slight-----	Slight.
94*: Lanktree-----	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.

See footnote at end of table.

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
94*: Chilcott-----	Severe: cemented pan, cutbanks cave.	Severe: shrink-swell.	Severe: cemented pan.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Moderate: cemented pan.
95----- Letha	Severe: cutbanks cave.	Slight-----	Moderate: wetness.	Slight-----	Moderate: frost action.	Slight.
96----- Letha	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding, frost action.	Slight.
97*: Letha-----	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding, frost action.	Slight.
Baldock-----	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: frost action.	Severe: excess salt.
98----- Loray	Severe: cutbanks cave.	Slight-----	Slight-----	Moderate: slope.	Slight-----	Severe: droughty.
99*: Loray-----	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Severe: droughty.
Dors-----	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: droughty, slope.
100----- Mazuma	Slight-----	Slight-----	Slight-----	Slight-----	Slight-----	Severe: excess salt.
101*: Mazuma-----	Slight-----	Slight-----	Slight-----	Moderate: slope.	Slight-----	Severe: excess salt.
Hawsley-----	Severe: cutbanks cave.	Slight-----	Slight-----	Moderate: slope.	Slight-----	Moderate: droughty.
102----- McKeeth	Severe: cutbanks cave.	Slight-----	Slight-----	Moderate: slope.	Slight-----	Moderate: small stones, droughty.
103*: Minidoka-----	Severe: cemented pan.	Moderate: cemented pan.	Severe: cemented pan.	Moderate: cemented pan.	Moderate: cemented pan.	Moderate: cemented pan.
Minveno-----	Severe: depth to rock, cemented pan.	Severe: cemented pan.	Severe: depth to rock, cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.
104*: Minidoka-----	Severe: cemented pan.	Moderate: cemented pan.	Severe: cemented pan.	Moderate: slope, cemented pan.	Moderate: cemented pan.	Moderate: cemented pan.

See footnote at end of table.

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
104*: Minveno-----	Severe: depth to rock, cemented pan.	Severe: cemented pan.	Severe: depth to rock, cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.
105, 106----- Minveno	Severe: depth to rock, cemented pan.	Severe: cemented pan.	Severe: depth to rock, cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.
107*: Minveno-----	Severe: depth to rock, cemented pan.	Severe: cemented pan.	Severe: depth to rock, cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.
Minidoka-----	Severe: cemented pan.	Moderate: cemented pan.	Severe: cemented pan.	Moderate: slope, cemented pan.	Moderate: cemented pan.	Moderate: large stones, cemented pan.
108*: Monroe-----	Slight-----	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, frost action.	Slight.
Jenness-----	Severe: cutbanks cave.	Slight-----	Slight-----	Slight-----	Slight-----	Slight.
109*: Monroe-----	Slight-----	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, frost action.	Slight.
Goose Creek-----	Moderate: too clayey, wetness.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: low strength, flooding, frost action.	Slight.
110*: Moran-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Teewinot-----	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: large stones, slope, depth to rock.
Coski-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
111----- Oland	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope, frost action.	Moderate: small stones, slope.
112----- Ornea	Severe: cutbanks cave.	Slight-----	Slight-----	Moderate: slope.	Slight-----	Moderate: small stones, droughty.
113*: Owsel-----	Slight-----	Slight-----	Slight-----	Moderate: slope.	Slight-----	Slight.

See footnote at end of table.

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
113*: Purdam-----	Severe: cutbanks cave.	Moderate: shrink-swell.	Moderate: cemented pan.	Moderate: shrink-swell, slope.	Severe: low strength.	Moderate: cemented pan.
114*: Perazzo-----	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: small stones, slope.
Ornea-----	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Abgese-----	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
115*. Pits						
116----- Power	Slight-----	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, low strength.	Slight.
117*: Power-----	Slight-----	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, low strength.	Slight.
Chardoton-----	Moderate: too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Slight.
118*: Power-----	Slight-----	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, low strength.	Slight.
Jenness-----	Severe: cutbanks cave.	Slight-----	Slight-----	Slight-----	Slight-----	Slight.
119*: Power-----	Slight-----	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, low strength.	Slight.
Purdam-----	Severe: cutbanks cave.	Moderate: shrink-swell.	Moderate: cemented pan.	Moderate: shrink-swell.	Severe: low strength.	Moderate: cemented pan.
120----- Purdam	Severe: cutbanks cave.	Moderate: shrink-swell.	Moderate: cemented pan.	Moderate: shrink-swell.	Severe: low strength.	Moderate: cemented pan.
121----- Purdam	Severe: cutbanks cave.	Moderate: shrink-swell.	Moderate: cemented pan.	Moderate: shrink-swell, slope.	Severe: low strength.	Moderate: cemented pan.
122*: Purdam-----	Severe: cutbanks cave.	Moderate: shrink-swell.	Moderate: cemented pan.	Moderate: shrink-swell, slope.	Severe: low strength.	Moderate: cemented pan.

See footnote at end of table.

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
122*: Sebree-----	Severe: cemented pan, cutbanks cave.	Moderate: cemented pan.	Severe: cemented pan.	Moderate: cemented pan.	Moderate: cemented pan, low strength.	Severe: excess salt, excess sodium.
Owsel-----	Slight-----	Slight-----	Slight-----	Moderate: slope.	Slight-----	Slight.
123*: Quartzburg-----	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: droughty, slope.
Wagontown-----	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: droughty, slope.
124----- Quincy	Severe: cutbanks cave.	Slight-----	Slight-----	Moderate: slope.	Slight-----	Moderate: droughty.
125----- Quincy	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
126*: Rainey-----	Severe: depth to rock, cutbanks cave, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
Brownlee-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
127*: Rainey-----	Severe: depth to rock, cutbanks cave, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
Schoolhouse-----	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: droughty, slope.
Oland-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
128*: Rainey-----	Severe: depth to rock, cutbanks cave, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
Van Dusen-----	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
129*: Rainey-----	Severe: depth to rock, cutbanks cave, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.

See footnote at end of table.



TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
129*: Van Dusen-----	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Schoolhouse-----	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: droughty, slope.
130*: Roanhide-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
Bauscher-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
131*: Roanhide-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
Bauscher-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Schoolhouse-----	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: droughty, slope.
132*: Rock outcrop.  Rubble land.						
133----- Royal	Slight-----	Slight-----	Slight-----	Slight-----	Slight-----	Slight.
134----- Royal	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
135*: Royal-----	Slight-----	Slight-----	Slight-----	Moderate: slope.	Slight-----	Slight.
Davey-----	Severe: cutbanks cave.	Slight-----	Slight-----	Moderate: slope.	Slight-----	Moderate: droughty.
136*: Royal-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Davey-----	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
137*: Royal-----	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
Shano-----	Severe: cutbanks cave.	Slight-----	Slight-----	Moderate: slope.	Slight-----	Slight.

See footnote at end of table.

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
137*: Rock outcrop.						
138*: Royal-----	Slight-----	Slight-----	Slight-----	Slight-----	Slight-----	Slight.
Truesdale-----	Moderate: cemented pan.	Slight-----	Moderate: cemented pan.	Slight-----	Slight-----	Moderate: droughty, cemented pan.
139----- Ruckles	Severe: depth to rock, large stones.	Severe: shrink-swell, depth to rock.	Severe: depth to rock, shrink-swell.	Severe: shrink-swell, depth to rock.	Severe: depth to rock, shrink-swell.	Severe: large stones, depth to rock.
140*: Schoolhouse-----	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: droughty, slope.
Rock outcrop.						
141----- Scism	Moderate: cemented pan, cutbanks cave.	Slight-----	Moderate: cemented pan.	Slight-----	Slight-----	Moderate: cemented pan.
142----- Scoon	Severe: cemented pan, cutbanks cave.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.
143----- Shano	Severe: cutbanks cave.	Slight-----	Slight-----	Moderate: slope.	Slight-----	Slight.
144*: Shano-----	Severe: cutbanks cave.	Slight-----	Slight-----	Moderate: slope.	Slight-----	Slight.
Owsel-----	Slight-----	Slight-----	Slight-----	Moderate: slope.	Slight-----	Slight.
145*: Shano-----	Severe: cutbanks cave.	Slight-----	Slight-----	Moderate: slope.	Slight-----	Slight.
Truesdale-----	Moderate: cemented pan.	Slight-----	Moderate: cemented pan.	Moderate: slope.	Slight-----	Moderate: droughty, cemented pan.
146----- Shoofly	Severe: cemented pan, cutbanks cave.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.
147*: Shoofly-----	Severe: cemented pan, cutbanks cave.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.
Ornea-----	Severe: cutbanks cave.	Slight-----	Slight-----	Moderate: slope.	Slight-----	Moderate: small stones, droughty.

See footnote at end of table.

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
148*: Sidlake-----	Severe: depth to rock.	Moderate: depth to rock.	Severe: depth to rock.	Moderate: slope, depth to rock.	Moderate: depth to rock.	Moderate: depth to rock.
Bruncan-----	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Severe: thin layer.
149----- Simonton	Severe: cutbanks cave.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Moderate: shrink-swell, low strength.	Slight.
150*: Simonton-----	Severe: cutbanks cave.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Moderate: shrink-swell, low strength, slope.	Moderate: slope.
Bauscher-----	Moderate: slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Moderate: slope, frost action, shrink-swell.	Moderate: slope.
151*: Simonton-----	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Elkcreek-----	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
152*: Stavelly-----	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Coski-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Switchback-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
153*: Switchback-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Grousecreek-----	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: droughty, slope.
154----- Timmerman	Severe: cutbanks cave.	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: slope.	Moderate: slope, large stones.	Severe: large stones, droughty.
155----- Timmerman	Severe: cutbanks cave.	Slight-----	Slight-----	Slight-----	Slight-----	Moderate: droughty.

See footnote at end of table.

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
156----- Timmerman	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: droughty, slope.
157*: Trevino-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
Garbutt-----	Slight-----	Slight-----	Slight-----	Moderate: slope.	Slight-----	Slight.
Weso-----	Severe: cutbanks cave.	Slight-----	Slight-----	Moderate: slope.	Slight-----	Slight.
158*: Trevino-----	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.
Minidoka-----	Severe: cemented pan.	Moderate: slope, cemented pan.	Severe: cemented pan.	Severe: slope.	Moderate: cemented pan, slope.	Moderate: slope, cemented pan.
159*: Trevino-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
Rock outcrop.						
160*: Trosi-----	Severe: cemented pan, cutbanks cave.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.
Chilcott-----	Severe: cemented pan.	Severe: shrink-swell.	Severe: cemented pan, shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Moderate: small stones, cemented pan.
Tenmile-----	Severe: cutbanks cave.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Moderate: shrink-swell, slope.	Moderate: small stones, droughty, slope.
161----- Truesdale	Moderate: cemented pan.	Slight-----	Moderate: cemented pan.	Slight-----	Slight-----	Moderate: droughty, cemented pan.
162----- Truesdale	Moderate: cemented pan, slope.	Moderate: slope.	Moderate: cemented pan, slope.	Severe: slope.	Moderate: slope.	Moderate: droughty, slope, cemented pan.
163. Typic Torriorthents						
164*: Typic Torriorthents.						
Badland.						

See footnote at end of table.

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
165*: Typic Torriorthents.  Rubble land.						
166*. Urban land						
167----- Vanderhoff	Moderate: depth to rock.	Slight-----	Moderate: depth to rock.	Slight-----	Slight-----	Moderate: small stones.
168----- Vanderhoff	Moderate: depth to rock, slope.	Moderate: slope.	Moderate: depth to rock, slope.	Severe: slope.	Moderate: slope.	Moderate: small stones, slope.
169*: Vanderhoff-----	Moderate: depth to rock, slope.	Moderate: slope.	Moderate: depth to rock, slope.	Severe: slope.	Moderate: slope.	Moderate: small stones, slope.
Buko-----	Severe: cutbanks cave.	Slight-----	Slight-----	Moderate: slope.	Moderate: frost action.	Moderate: droughty.
Loray-----	Severe: cutbanks cave.	Slight-----	Slight-----	Moderate: slope.	Slight-----	Severe: droughty.
170----- Vining	Severe: depth to rock.	Moderate: depth to rock.	Severe: depth to rock.	Moderate: slope, depth to rock.	Moderate: depth to rock.	Severe: large stones.
171*: Willhill-----	Severe: depth to rock.	Moderate: slope, depth to rock, large stones.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, slope, large stones.	Moderate: small stones, large stones, slope.
Cottle-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.
172*, 173*: Xeric Torriorthents.  Xerollic Camborthids.						
174----- Yutru	Moderate: too clayey.	Severe: shrink-swell.	Slight-----	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Severe: too clayey.

\* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 9.--SANITARY FACILITIES

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "good," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
1----- Abgese	Severe: poor filter.	Severe: seepage.	Moderate: too sandy.	Slight-----	Poor: small stones.
2----- Abgese	Severe: poor filter, slope.	Severe: seepage, slope.	Severe: slope.	Severe: slope.	Poor: small stones, slope.
3----- Abgese	Severe: poor filter.	Severe: seepage.	Moderate: too sandy.	Slight-----	Poor: small stones.
4----- Arbridge	Severe: cemented pan.	Severe: seepage, cemented pan.	Moderate: cemented pan.	Severe: cemented pan.	Poor: cemented pan.
5*: Arbridge-----	Severe: cemented pan.	Severe: seepage, cemented pan.	Moderate: cemented pan.	Severe: cemented pan.	Poor: cemented pan.
Buko-----	Severe: poor filter.	Severe: seepage.	Severe: too sandy.	Slight-----	Poor: seepage, too sandy, small stones.
6*: Badge-----	Severe: percs slowly, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: small stones, slope.
Immiant-----	Severe: depth to rock, percs slowly, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
Rubble land.					
7, 8----- Bahem	Moderate: percs slowly.	Moderate: seepage, slope.	Slight-----	Slight-----	Good.
9*: Bahem-----	Moderate: percs slowly.	Moderate: seepage, slope.	Slight-----	Slight-----	Good.
Minidoka-----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Slight-----	Poor: cemented pan.
Trevino-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Slight-----	Poor: depth to rock, small stones.
10----- Baldock	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: wetness.

See footnote at end of table.

TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
11----- Bram	Severe: wetness, percs slowly.	Severe: seepage, wetness.	Severe: wetness.	Severe: wetness.	Fair: wetness.
12----- Bramwell	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness, excess salt.	Severe: wetness.	Fair: wetness.
13----- Brinegar	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: too clayey, wetness.
14*: Broad Canyon-----	Severe: poor filter, slope.	Severe: seepage, slope.	Severe: depth to rock, seepage, slope.	Severe: seepage, slope.	Poor: small stones, slope.
Coski-----	Severe: slope.	Severe: seepage, slope.	Severe: depth to rock, seepage, slope.	Severe: seepage, slope.	Poor: slope.
15*: Broad Canyon-----	Severe: poor filter, slope.	Severe: seepage, slope.	Severe: depth to rock, seepage, slope.	Severe: seepage, slope.	Poor: small stones, slope.
Grousecreek-----	Severe: poor filter, slope.	Severe: seepage, slope.	Severe: depth to rock, seepage, slope.	Severe: seepage, slope.	Poor: small stones, slope.
16*: Broad Canyon-----	Severe: poor filter, slope.	Severe: seepage, slope.	Severe: depth to rock, seepage, slope.	Severe: seepage, slope.	Poor: small stones, slope.
Switchback-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, small stones, slope.
17----- Brownlee	Severe: percs slowly.	Severe: slope.	Moderate: too clayey.	Slight-----	Fair: too clayey.
18*: Brownlee-----	Severe: percs slowly.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, slope.
Immiant-----	Severe: depth to rock, percs slowly.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock.
19*: Brownlee-----	Severe: percs slowly.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, slope.

See footnote at end of table.

TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
19*: Van Dusen-----	Severe: percs slowly.	Severe: seepage, slope.	Severe: seepage.	Moderate: slope.	Fair: slope, thin layer.
20*: Bruncan-----	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Poor: depth to rock, small stones.
Troughs-----	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Slight-----	Poor: depth to rock, large stones.
21----- Buko	Severe: poor filter.	Severe: seepage.	Severe: too sandy.	Slight-----	Poor: seepage, too sandy, small stones.
22----- Buko	Severe: poor filter.	Severe: seepage, slope.	Severe: too sandy.	Moderate: slope.	Poor: seepage, too sandy, small stones.
23----- Chardoton	Severe: percs slowly.	Moderate: seepage, cemented pan, slope.	Moderate: cemented pan.	Slight-----	Poor: hard to pack.
24----- Chilcott	Severe: cemented pan, percs slowly.	Severe: seepage, cemented pan.	Severe: cemented pan.	Slight-----	Poor: cemented pan, seepage, small stones.
25----- Chilcott	Severe: cemented pan, percs slowly.	Severe: cemented pan.	Severe: cemented pan.	Slight-----	Poor: cemented pan.
26*: Chilcott-----	Severe: cemented pan, percs slowly.	Severe: cemented pan, slope.	Severe: cemented pan.	Slight-----	Poor: cemented pan.
Day-----	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
Rock outcrop.					
27*: Chilcott-----	Severe: cemented pan, percs slowly.	Severe: seepage, cemented pan.	Severe: cemented pan.	Slight-----	Poor: cemented pan, seepage, small stones.
Elijah-----	Severe: cemented pan.	Severe: seepage, cemented pan.	Severe: cemented pan, too sandy.	Severe: cemented pan.	Poor: cemented pan, seepage, too sandy.

See footnote at end of table.



TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
28*: Chilcott-----	Severe: cemented pan, percs slowly.	Severe: cemented pan, slope.	Severe: cemented pan.	Slight-----	Poor: cemented pan.
Kunaton-----	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan, slope.	Severe: depth to rock, cemented pan.	Slight-----	Poor: depth to rock.
Chardoton-----	Severe: percs slowly.	Moderate: seepage, cemented pan, slope.	Moderate: cemented pan.	Slight-----	Poor: hard to pack.
29*: Chilcott-----	Severe: cemented pan, percs slowly.	Severe: seepage, cemented pan.	Severe: cemented pan.	Slight-----	Poor: cemented pan, seepage, small stones.
Power-----	Severe: percs slowly.	Moderate: seepage, slope.	Slight-----	Slight-----	Good.
30*: Cinder land					
31----- Colthorp	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Slight-----	Poor: depth to rock.
32*: Colthorp-----	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Slight-----	Poor: depth to rock.
Chilcott-----	Severe: cemented pan, percs slowly.	Severe: seepage, cemented pan.	Severe: cemented pan.	Slight-----	Poor: cemented pan, seepage, small stones.
33*: Colthorp-----	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Slight-----	Poor: depth to rock.
Kunaton-----	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Poor: depth to rock.
34*: Colthorp-----	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan, slope.	Severe: depth to rock, cemented pan.	Moderate: slope.	Poor: depth to rock.
Kunaton-----	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan, slope.	Severe: depth to rock, cemented pan.	Moderate: slope.	Poor: depth to rock.

See footnote at end of table.

TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
34*: Rubble land.					
35*: Colthorp-----	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Slight-----	Poor: depth to rock.
Minveno-----	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Slight-----	Poor: depth to rock.
36*: Colthorp-----	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan, slope.	Severe: depth to rock, cemented pan.	Moderate: slope.	Poor: depth to rock.
Rock outcrop.					
37*: Coski-----	Severe: slope.	Severe: seepage, slope.	Severe: depth to rock, seepage, slope.	Severe: seepage, slope.	Poor: slope.
Broad Canyon-----	Severe: poor filter, slope.	Severe: seepage, slope.	Severe: depth to rock, seepage, slope.	Severe: seepage, slope.	Poor: small stones, slope.
38*: Cottle-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: depth to rock, small stones, slope.
Sidlake-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: depth to rock, small stones, slope.
39*: Cottle-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, small stones, slope.
Trevino-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: depth to rock, small stones, slope.
Rock outcrop.					
40*: Cottle-----	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Moderate: slope.	Poor: depth to rock, small stones.

See footnote at end of table.

TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
40*: Willhill-----	Severe: depth to rock.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, large stones.	Moderate: slope.	Poor: depth to rock, small stones.
41----- Cowgil	Severe: percs slowly, poor filter.	Severe: seepage, slope.	Severe: too sandy.	Moderate: slope.	Poor: seepage, too sandy, small stones.
42----- Cowgil	Severe: percs slowly, poor filter.	Severe: seepage.	Severe: too sandy.	Slight-----	Poor: seepage, too sandy, small stones.
43*: Cowgil-----	Severe: percs slowly, poor filter, slope.	Severe: seepage, slope.	Severe: slope, too sandy.	Severe: slope.	Poor: seepage, too sandy, small stones.
Rubble land.					
Rock outcrop.					
44----- Davey	Severe: poor filter.	Severe: seepage, slope.	Severe: too sandy.	Moderate: slope.	Poor: seepage, too sandy.
45----- Davey	Severe: poor filter.	Severe: seepage.	Severe: too sandy.	Slight-----	Poor: seepage, too sandy.
46*: Davey-----	Severe: poor filter.	Severe: seepage.	Severe: too sandy.	Slight-----	Poor: seepage, too sandy.
Buko-----	Severe: poor filter.	Severe: seepage.	Severe: too sandy.	Slight-----	Poor: seepage, too sandy, small stones.
47*: Davey-----	Severe: poor filter, slope.	Severe: seepage, slope.	Severe: slope, too sandy.	Severe: slope.	Poor: seepage, too sandy, slope.
Mazuma-----	Severe: slope.	Severe: seepage, slope.	Severe: slope.	Severe: slope.	Poor: slope.
48*: Davey-----	Severe: poor filter.	Severe: seepage.	Severe: too sandy.	Slight-----	Poor: seepage, too sandy.
Quincy-----	Severe: poor filter.	Severe: seepage.	Severe: too sandy.	Slight-----	Poor: too sandy.

See footnote at end of table.

TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
49*: Davey-----	Severe: poor filter.	Severe: seepage.	Severe: too sandy.	Slight-----	Poor: seepage, too sandy.
Vanderhoff-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock.
50----- Dors	Severe: poor filter.	Severe: seepage.	Severe: too sandy.	Slight-----	Poor: seepage, too sandy, small stones.
51----- Dors	Severe: poor filter.	Severe: seepage, slope.	Severe: too sandy.	Moderate: slope.	Poor: seepage, too sandy, small stones.
52*: Dors-----	Severe: poor filter.	Severe: seepage.	Severe: too sandy.	Slight-----	Poor: seepage, too sandy, small stones.
Loray-----	Severe: poor filter.	Severe: seepage.	Severe: too sandy.	Slight-----	Poor: seepage, too sandy, small stones.
53*. Dune land					
54----- Elijah	Severe: cemented pan.	Severe: seepage, cemented pan.	Severe: cemented pan, too sandy.	Severe: cemented pan.	Poor: cemented pan, seepage, too sandy.
55----- Elijah	Severe: cemented pan.	Severe: seepage, cemented pan, slope.	Severe: cemented pan, too sandy.	Severe: cemented pan.	Poor: cemented pan, seepage, too sandy.
56*: Elijah-----	Severe: cemented pan.	Severe: seepage, cemented pan.	Severe: cemented pan, too sandy.	Severe: cemented pan.	Poor: cemented pan, seepage, too sandy.
Purdam-----	Severe: cemented pan.	Severe: seepage, cemented pan.	Severe: too sandy.	Slight-----	Poor: cemented pan, too sandy, small stones.
57*: Elkcreek-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
Demast-----	Severe: percs slowly, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: large stones, slope.

See footnote at end of table.

TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
58*: Elkcreek-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
Gaib-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, small stones, slope.
Simonton-----	Severe: percs slowly, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: slope.	Poor: slope.
59*: Farrot-----	Severe: depth to rock, poor filter, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: depth to rock, slope.
Haw-----	Severe: percs slowly, poor filter, slope.	Severe: seepage, slope.	Severe: slope.	Severe: slope.	Poor: slope.
60----- Fluvaquents	Severe: wetness, percs slowly.	Severe: seepage, wetness.	Severe: seepage, wetness.	Severe: seepage, wetness.	Fair: too sandy, wetness.
61*: Gaib-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, small stones, slope.
Rubble land.					
62*: Gaib-----	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock, small stones.
Elkcreek-----	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock.
Rock outcrop.					
63*: Gaib-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, small stones, slope.
Elkcreek-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
Simonton-----	Severe: percs slowly, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: slope.	Poor: slope.

See footnote at end of table.

TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
64*: Gaib-----	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock, small stones.
Simonton-----	Severe: percs slowly.	Severe: seepage, slope.	Severe: seepage.	Slight-----	Fair: too clayey.
Rock outcrop.					
65, 66----- Garbutt	Moderate: percs slowly.	Moderate: seepage, slope.	Slight-----	Slight-----	Good.
67*: Garbutt-----	Moderate: percs slowly.	Moderate: seepage.	Slight-----	Slight-----	Good.
Weso-----	Moderate: percs slowly.	Severe: seepage.	Severe: excess salt.	Slight-----	Fair: too sandy, small stones.
68*: Garbutt-----	Moderate: percs slowly.	Moderate: seepage, slope.	Slight-----	Slight-----	Good.
Weso-----	Moderate: percs slowly.	Severe: seepage.	Severe: excess salt.	Slight-----	Fair: too sandy, small stones.
Trevino-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Slight-----	Poor: depth to rock, small stones.
69*: Garbutt-----	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope.	Moderate: slope.	Fair: slope.
Trevino-----	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Moderate: slope.	Poor: depth to rock, small stones.
70----- Grandview	Severe: wetness, percs slowly.	Moderate: seepage, slope, wetness.	Severe: wetness.	Moderate: flooding, wetness.	Good.
71*: Grandview-----	Severe: percs slowly.	Moderate: slope.	Slight-----	Slight-----	Good.
Garbutt-----	Moderate: percs slowly.	Moderate: seepage, slope.	Slight-----	Slight-----	Good.

See footnote at end of table.

TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
72*: Graylock-----	Severe: poor filter, slope.	Severe: seepage, slope.	Severe: depth to rock, seepage, slope.	Severe: seepage, slope.	Poor: small stones, slope.
Broad Canyon-----	Severe: poor filter, slope.	Severe: seepage, slope.	Severe: depth to rock, seepage, slope.	Severe: seepage, slope.	Poor: small stones, slope.
73----- Greenleaf	Severe: percs slowly.	Moderate: slope.	Slight-----	Slight-----	Good.
74*: Greenleaf-----	Severe: percs slowly.	Severe: slope.	Moderate: slope.	Moderate: slope.	Fair: slope.
Shano-----	Moderate: slope.	Severe: seepage, slope.	Moderate: slope.	Moderate: slope.	Fair: slope.
75*: Haplaquolls-----	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness, thin layer.
Xerofluvents.					
76*: Harahill-----	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock.
Willho-----	Severe: cemented pan, percs slowly.	Severe: cemented pan.	Severe: cemented pan, too clayey.	Severe: cemented pan.	Poor: cemented pan, too clayey, hard to pack.
77*: Haw-----	Severe: percs slowly, poor filter.	Severe: seepage, slope.	Moderate: slope.	Moderate: slope.	Fair: slope, thin layer.
Farrot-----	Severe: depth to rock, poor filter.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Poor: depth to rock.
78*: Haw-----	Severe: percs slowly, poor filter.	Severe: seepage, slope.	Moderate: slope.	Moderate: slope.	Fair: slope, thin layer.
Lankbush-----	Severe: percs slowly.	Severe: seepage, slope.	Moderate: slope.	Moderate: slope.	Fair: slope, thin layer.
79----- Hawsley	Severe: poor filter.	Severe: seepage.	Severe: too sandy.	Slight-----	Poor: seepage, too sandy.

See footnote at end of table.

TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
80*: Hotcreek-----	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan, slope.	Severe: depth to rock.	Moderate: slope.	Poor: depth to rock.
Troughs-----	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan, slope.	Severe: depth to rock, cemented pan.	Slight-----	Poor: depth to rock, small stones.
81----- Houk	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack.
82----- Immiant	Severe: depth to rock, percs slowly.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock.
83*: Immiant-----	Severe: depth to rock, percs slowly.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock.
Ruckles-----	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock, too clayey.	Severe: depth to rock.	Poor: depth to rock, too clayey, small stones.
Rock outcrop.					
84----- Jacquith	Severe: cemented pan, poor filter.	Severe: seepage, cemented pan, slope.	Moderate: cemented pan, slope, too sandy.	Severe: cemented pan.	Poor: cemented pan.
85----- Jacquith	Severe: cemented pan, poor filter.	Severe: seepage, cemented pan.	Moderate: cemented pan, too sandy.	Severe: cemented pan.	Poor: cemented pan.
86*: Jacquith-----	Severe: cemented pan, poor filter.	Severe: seepage, cemented pan.	Moderate: cemented pan, too sandy.	Severe: cemented pan.	Poor: cemented pan.
Quincy-----	Severe: poor filter.	Severe: seepage, slope.	Severe: too sandy.	Moderate: slope.	Poor: too sandy.
87*: Karcial-----	Severe: depth to rock, percs slowly.	Severe: depth to rock, slope.	Severe: depth to rock, too clayey.	Severe: depth to rock.	Poor: depth to rock, too clayey, hard to pack.
Day-----	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
Rock outcrop.					

See footnote at end of table.



TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
88----- Kunaton	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Poor: depth to rock.
89*: Kunaton-----	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan, slope.	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Poor: depth to rock.
Chilcott-----	Severe: cemented pan, percs slowly.	Severe: seepage, cemented pan, slope.	Severe: cemented pan.	Slight-----	Poor: cemented pan, seepage, small stones.
90----- Lankbush	Severe: percs slowly.	Severe: seepage.	Slight-----	Slight-----	Fair: thin layer.
91*: Lankbush-----	Severe: percs slowly, slope.	Severe: seepage, slope.	Severe: slope.	Severe: slope.	Poor: slope.
Lanktree-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
92*: Lankbush-----	Severe: percs slowly.	Severe: seepage.	Slight-----	Slight-----	Fair: thin layer.
Jenness-----	Severe: poor filter.	Severe: seepage.	Slight-----	Slight-----	Poor: thin layer.
93----- Lanktree	Moderate: percs slowly.	Moderate: seepage, slope.	Slight-----	Slight-----	Good.
94*: Lanktree-----	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope.	Moderate: slope.	Fair: slope.
Chilcott-----	Severe: cemented pan, percs slowly.	Severe: seepage, cemented pan.	Severe: cemented pan.	Slight-----	Poor: cemented pan, seepage, small stones.
95----- Letha	Moderate: wetness.	Severe: seepage.	Severe: seepage, wetness.	Severe: seepage.	Good.
96----- Letha	Severe: wetness.	Severe: seepage, wetness.	Severe: seepage, wetness.	Severe: wetness.	Fair: wetness, thin layer.
97*: Letha-----	Severe: wetness.	Severe: seepage, wetness.	Severe: seepage, wetness.	Severe: wetness.	Fair: wetness, thin layer.

See footnote at end of table.

TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
97*: Baldock-----	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: wetness.
98----- Loray	Severe: poor filter.	Severe: seepage.	Severe: too sandy.	Slight-----	Poor: seepage, too sandy, small stones.
99*: Loray-----	Severe: poor filter.	Severe: seepage, slope.	Severe: too sandy.	Moderate: slope.	Poor: seepage, too sandy, small stones.
Dors-----	Severe: poor filter.	Severe: seepage, slope.	Severe: too sandy.	Moderate: slope.	Poor: seepage, too sandy, small stones.
100----- Mazuma	Slight-----	Severe: seepage.	Slight-----	Slight-----	Good.
101*: Mazuma-----	Slight-----	Severe: seepage.	Slight-----	Slight-----	Good.
Hawsley-----	Severe: poor filter.	Severe: seepage.	Severe: too sandy.	Slight-----	Poor: seepage, too sandy.
102----- McKeeth	Severe: poor filter.	Severe: seepage, slope.	Severe: too sandy.	Slight-----	Poor: seepage, too sandy, small stones.
103*, 104*: Minidoka-----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Slight-----	Poor: cemented pan.
Minveno-----	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Slight-----	Poor: depth to rock.
105, 106----- Minveno	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Slight-----	Poor: depth to rock.
107*: Minveno-----	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Slight-----	Poor: depth to rock.
Minidoka-----	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.	Slight-----	Poor: cemented pan.
108*: Monroe-----	Moderate: percs slowly.	Severe: seepage.	Severe: seepage.	Slight-----	Good.

See footnote at end of table.

TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
108*: Jenness-----	Severe: poor filter.	Severe: seepage.	Slight-----	Slight-----	Poor: thin layer.
109*: Monroe-----	Moderate: percs slowly.	Severe: seepage.	Severe: seepage.	Slight-----	Good.
Goose Creek-----	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey.
110*: Moran-----	Severe: slope.	Severe: seepage, slope.	Severe: depth to rock, seepage, slope.	Severe: seepage, slope.	Poor: small stones, slope.
Teewinot-----	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, slope.	Poor: depth to rock, small stones, slope.
Coski-----	Severe: slope.	Severe: seepage, slope.	Severe: depth to rock, seepage, slope.	Severe: seepage, slope.	Poor: slope.
111----- Oland	Moderate: percs slowly, slope.	Severe: seepage, slope.	Severe: seepage.	Moderate: slope.	Poor: seepage, small stones.
112----- Ornea	Severe: poor filter.	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy, small stones.
113*: Owsel-----	Severe: percs slowly.	Severe: seepage.	Slight-----	Slight-----	Good.
Purdam-----	Severe: cemented pan.	Severe: seepage, cemented pan.	Severe: too sandy.	Slight-----	Poor: cemented pan, too sandy, small stones.
114*: Perazzo-----	Severe: poor filter, slope.	Severe: seepage, slope.	Severe: slope, too sandy.	Severe: slope.	Poor: seepage, too sandy, small stones.
Ornea-----	Severe: poor filter, slope.	Severe: seepage, slope.	Severe: seepage, slope, too sandy.	Severe: seepage, slope.	Poor: seepage, too sandy, small stones.
Abgese-----	Severe: poor filter, slope.	Severe: seepage, slope.	Severe: slope.	Severe: slope.	Poor: small stones, slope.

See footnote at end of table.

TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
115*. Pits					
116----- Power	Severe: percs slowly.	Moderate: seepage, slope.	Slight-----	Slight-----	Good.
117*: Power-----	Severe: percs slowly.	Moderate: seepage, slope.	Slight-----	Slight-----	Good.
Chardoton-----	Severe: percs slowly.	Moderate: seepage, cemented pan, slope.	Moderate: cemented pan.	Slight-----	Poor: hard to pack.
118*: Power-----	Severe: percs slowly.	Moderate: seepage.	Slight-----	Slight-----	Good.
Jenness-----	Severe: poor filter.	Severe: seepage.	Slight-----	Slight-----	Poor: thin layer.
119*: Power-----	Severe: percs slowly.	Moderate: seepage.	Slight-----	Slight-----	Good.
Purdam-----	Severe: cemented pan.	Severe: seepage, cemented pan.	Severe: too sandy.	Slight-----	Poor: cemented pan, too sandy, small stones.
120, 121----- Purdam	Severe: cemented pan.	Severe: seepage, cemented pan.	Severe: too sandy.	Slight-----	Poor: cemented pan, too sandy, small stones.
122*: Purdam-----	Severe: cemented pan.	Severe: seepage, cemented pan.	Severe: too sandy.	Slight-----	Poor: cemented pan, too sandy, small stones.
Sebree-----	Severe: cemented pan.	Severe: seepage, cemented pan.	Severe: cemented pan, excess salt.	Slight-----	Poor: cemented pan.
Owsel-----	Severe: percs slowly.	Severe: seepage.	Slight-----	Slight-----	Good.
123*: Quartzburg-----	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: depth to rock, seepage, small stones.
Wagontown-----	Severe: poor filter, slope.	Severe: seepage, slope.	Severe: depth to rock, seepage, slope.	Severe: seepage, slope.	Poor: seepage, too sandy, small stones.

See footnote at end of table.

TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
124----- Quincy	Severe: poor filter.	Severe: seepage.	Severe: too sandy.	Slight-----	Poor: too sandy.
125----- Quincy	Severe: poor filter, slope.	Severe: seepage, slope.	Severe: slope, too sandy.	Severe: slope.	Poor: too sandy, slope.
126*: Rainey-----	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: depth to rock, slope.
Brownlee-----	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
127*: Rainey-----	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: depth to rock, slope.
Schoolhouse-----	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, slope.	Poor: depth to rock, seepage, small stones.
Oland-----	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: slope.	Poor: seepage, small stones, slope.
128*: Rainey-----	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: depth to rock, slope.
Van Dusen-----	Severe: percs slowly, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: slope.	Poor: slope.
129*: Rainey-----	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: depth to rock, slope.
Van Dusen-----	Severe: percs slowly, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: slope.	Poor: slope.
Schoolhouse-----	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, slope.	Poor: depth to rock, seepage, small stones.

See footnote at end of table.

TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
130*: Roanhide-----	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: depth to rock, slope.
Bauscher-----	Severe: percs slowly, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: slope.	Poor: slope.
131*: Roanhide-----	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: depth to rock, slope.
Bauscher-----	Severe: percs slowly, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: slope.	Poor: slope.
Schoolhouse-----	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, slope.	Poor: depth to rock, seepage, small stones.
132*: Rock outcrop. Rubble land.					
133----- Royal	Slight-----	Severe: seepage.	Slight-----	Slight-----	Good.
134----- Royal	Moderate: slope.	Severe: seepage, slope.	Moderate: slope.	Moderate: slope.	Fair: slope.
135*: Royal-----	Slight-----	Severe: seepage.	Slight-----	Slight-----	Good.
Davey-----	Severe: poor filter.	Severe: seepage.	Severe: too sandy.	Slight-----	Poor: seepage, too sandy.
136*: Royal-----	Severe: slope.	Severe: seepage, slope.	Severe: slope.	Severe: slope.	Poor: slope.
Davey-----	Severe: poor filter, slope.	Severe: seepage, slope.	Severe: slope, too sandy.	Severe: slope.	Poor: seepage, too sandy, slope.
137*: Royal-----	Moderate: slope.	Severe: seepage, slope.	Moderate: slope.	Moderate: slope.	Fair: slope.

See footnote at end of table.

TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
137*: Shano-----  Rock outcrop.	Slight-----	Severe: seepage.	Slight-----	Slight-----	Good.
138*: Royal-----	Slight-----	Severe: seepage.	Slight-----	Slight-----	Good.
Truesdale-----	Severe: cemented pan.	Severe: seepage, cemented pan.	Moderate: cemented pan.	Slight-----	Poor: cemented pan.
139----- Ruckles	Severe: depth to rock, large stones.	Severe: depth to rock, large stones.	Severe: depth to rock, too clayey.	Severe: depth to rock.	Poor: depth to rock, too clayey, hard to pack.
140*: Schoolhouse-----  Rock outcrop.	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, slope.	Poor: depth to rock, seepage, small stones.
141----- Scism	Severe: cemented pan.	Severe: cemented pan.	Moderate: cemented pan.	Slight-----	Poor: cemented pan.
142----- Scoon	Severe: cemented pan.	Severe: seepage, cemented pan.	Severe: cemented pan.	Slight-----	Poor: cemented pan, small stones.
143----- Shano	Slight-----	Severe: seepage.	Slight-----	Slight-----	Good.
144*: Shano-----	Slight-----	Severe: seepage.	Slight-----	Slight-----	Good.
Owsel-----	Severe: percs slowly.	Severe: seepage.	Slight-----	Slight-----	Good.
145*: Shano-----	Slight-----	Severe: seepage.	Slight-----	Slight-----	Good.
Truesdale-----	Severe: cemented pan.	Severe: seepage, cemented pan.	Moderate: cemented pan.	Slight-----	Poor: cemented pan.
146----- Shoofly	Severe: cemented pan, poor filter.	Severe: seepage, cemented pan.	Severe: cemented pan, too sandy.	Slight-----	Poor: cemented pan, seepage, too sandy.

See footnote at end of table.

TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
147*: Shoofly-----	Severe: cemented pan, poor filter.	Severe: seepage, cemented pan.	Severe: cemented pan, too sandy.	Slight-----	Poor: cemented pan, seepage, too sandy.
Ornea-----	Severe: poor filter.	Severe: seepage, slope.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy, small stones.
148*: Sidlake-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Slight-----	Poor: depth to rock, small stones.
Bruncan-----	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Poor: area reclaim, small stones.
149----- Simonton	Severe: percs slowly.	Severe: seepage, slope.	Severe: seepage.	Slight-----	Fair: too clayey.
150*: Simonton-----	Severe: percs slowly.	Severe: seepage, slope.	Severe: seepage.	Moderate: slope.	Fair: too clayey, slope.
Bauscher-----	Severe: percs slowly.	Severe: seepage, slope.	Severe: seepage.	Moderate: slope.	Fair: small stones, slope.
151*: Simonton-----	Severe: percs slowly, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: slope.	Poor: slope.
Elkcreek-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
152*: Stavely-----	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope, too sandy.	Severe: seepage, slope.	Poor: seepage, too sandy, small stones.
Coski-----	Severe: slope.	Severe: seepage, slope.	Severe: depth to rock, seepage, slope.	Severe: seepage, slope.	Poor: slope.
Switchback-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, small stones, slope.

See footnote at end of table.



TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
153*: Switchback-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, small stones, slope.
Grousecreek-----	Severe: poor filter, slope.	Severe: seepage, slope.	Severe: depth to rock, seepage, slope.	Severe: seepage, slope.	Poor: small stones, slope.
154----- Timmerman	Severe: poor filter.	Severe: seepage, slope, large stones.	Severe: too sandy, large stones.	Moderate: slope.	Poor: seepage, too sandy, large stones.
155----- Timmerman	Severe: poor filter.	Severe: seepage.	Severe: too sandy.	Slight-----	Poor: seepage, too sandy.
156----- Timmerman	Severe: poor filter.	Severe: seepage, slope.	Severe: too sandy.	Moderate: slope.	Poor: seepage, too sandy.
157*: Trevino-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Slight-----	Poor: depth to rock, small stones.
Garbutt-----	Moderate: percs slowly.	Moderate: seepage, slope.	Slight-----	Slight-----	Good.
Weso-----	Moderate: percs slowly.	Severe: seepage.	Severe: excess salt.	Slight-----	Fair: too sandy, small stones.
158*: Trevino-----	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: depth to rock, small stones, slope.
Minidoka-----	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: cemented pan.	Moderate: slope.	Poor: cemented pan.
159*: Trevino-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Slight-----	Poor: depth to rock, small stones.
Rock outcrop.					
160*: Trosi-----	Severe: cemented pan, poor filter.	Severe: seepage, cemented pan, slope.	Severe: cemented pan.	Slight-----	Poor: cemented pan, seepage, small stones.

See footnote at end of table.

TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
160*: Chilcott-----	Severe: cemented pan.	Severe: cemented pan, slope.	Severe: cemented pan.	Slight-----	Poor: cemented pan, hard to pack, small stones.
Tenmile-----	Severe: percs slowly.	Severe: seepage, slope.	Moderate: slope.	Moderate: slope.	Poor: small stones.
161----- Truesdale	Severe: cemented pan.	Severe: seepage, cemented pan.	Moderate: cemented pan.	Slight-----	Poor: cemented pan.
162----- Truesdale	Severe: cemented pan.	Severe: seepage, cemented pan, slope.	Moderate: cemented pan, slope.	Moderate: slope.	Poor: cemented pan.
163. Typic Torriorthents					
164*: Typic Torriorthents					
Badland.					
165*: Typic Torriorthents					
Rubble land.					
166*. Urban land					
167----- Vanderhoff	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock.
168----- Vanderhoff	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock.
169*: Vanderhoff-----	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock.
Buko-----	Severe: poor filter.	Severe: seepage, slope.	Severe: too sandy.	Slight-----	Poor: seepage, too sandy, small stones.
Loray-----	Severe: poor filter.	Severe: seepage, slope.	Severe: too sandy.	Slight-----	Poor: seepage, too sandy, small stones.
170----- Vining	Severe: depth to rock.	Severe: seepage, depth to rock.	Severe: depth to rock.	Slight-----	Poor: depth to rock.

See footnote at end of table.

TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
171*: Willhill-----	Severe: depth to rock.	Severe: depth to rock, slope, large stones.	Severe: depth to rock, large stones.	Moderate: slope.	Poor: depth to rock, small stones.
Cottle-----	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Moderate: slope.	Poor: depth to rock, small stones.
172*, 173*: Xeric Torriorthents  Xerollic Camborthids.					
174----- Yutru	Severe: percs slowly.	Moderate: slope, large stones.	Moderate: large stones.	Slight-----	Fair: large stones.

\* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 10.--CONSTRUCTION MATERIALS

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
1----- Abgese	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
2----- Abgese	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
3----- Abgese	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
4----- Arbridge	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: cemented pan, small stones.
5*: Arbridge-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: cemented pan, small stones.
Buko-----	Good-----	Probable-----	Probable-----	Poor: small stones, area reclaim.
6*: Badge-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Immiant-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Rubble land.				
7, 8----- Bahem	Good-----	Improbable: excess fines.	Improbable: excess fines.	Good.
9*: Bahem-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Good.
Minidoka-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Fair: cemented pan, small stones, thin layer.
Trevino-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, large stones.

See footnote at end of table.

TABLE 10.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
10----- Baldock	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt.
11----- Bram	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt.
12----- Bramwell	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt.
13----- Brinegar	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
14*: Broad Canyon-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Coski-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
15*: Broad Canyon-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Grousecreek-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
16*: Broad Canyon-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Switchback-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
17----- Brownlee	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, area reclaim.
18*: Brownlee-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, area reclaim, slope.
Immiant-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.

See footnote at end of table.

TABLE 10.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
19*: Brownlee-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, area reclaim, slope.
Van Dusen-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
20*: Bruncan-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, cemented pan, small stones.
Troughs-----	Poor: depth to rock, large stones.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: cemented pan, large stones.
21, 22----- Buko	Good-----	Probable-----	Probable-----	Poor: small stones, area reclaim.
23----- Chardoton	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
24----- Chilcott	Poor: cemented pan.	Probable-----	Probable-----	Poor: too clayey, area reclaim.
25----- Chilcott	Poor: cemented pan, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
26*: Chilcott-----	Poor: cemented pan, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
Day-----	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Rock outcrop.				
27*: Chilcott-----	Poor: cemented pan.	Probable-----	Probable-----	Poor: too clayey, area reclaim.
Elijah-----	Poor: cemented pan.	Probable-----	Improbable: thin layer.	Poor: area reclaim.
28*: Chilcott-----	Poor: cemented pan, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.

See footnote at end of table.

TABLE 10.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
28*: Kunaton-----	Poor: depth to rock, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan, too clayey.
Chardoton-----	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
29*: Chilcott-----	Poor: cemented pan.	Probable-----	Probable-----	Poor: too clayey, area reclaim.
Power-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
30*. Cinder land				
31----- Colthorp	Poor: depth to rock, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan.
32*: Colthorp-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan.
Chilcott-----	Poor: cemented pan.	Probable-----	Probable-----	Poor: too clayey, area reclaim.
33*: Colthorp-----	Poor: depth to rock, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan.
Kunaton-----	Poor: depth to rock, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan.
34*: Colthorp-----	Poor: depth to rock, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan.
Kunaton-----	Poor: depth to rock, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan, too clayey.
Rubble land.				
35*: Colthorp-----	Poor: depth to rock, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan.
Minveno-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan.

See footnote at end of table.

TABLE 10.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
36*: Colthorp-----	Poor: depth to rock, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan, small stones.
Rock outcrop.				
37*: Coski-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Broad Canyon-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
38*: Cottle-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
Sidlake-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
39*: Cottle-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
Trevino-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, large stones, slope.
Rock outcrop.				
40*: Cottle-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones.
Willhill-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
41, 42----- Cowgil	Fair: large stones.	Probable-----	Probable-----	Poor: small stones, area reclaim.
43*: Cowgil-----	Poor: slope.	Probable-----	Probable-----	Poor: small stones, area reclaim, slope.
Rubble land.				
Rock outcrop.				

See footnote at end of table.



TABLE 10.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
44, 45----- Davey	Good-----	Probable-----	Improbable: too sandy.	Poor: too sandy.
46*:----- Davey	Good-----	Probable-----	Improbable: too sandy.	Poor: too sandy.
Buko-----	Good-----	Probable-----	Probable-----	Poor: small stones, area reclaim.
47*:----- Davey	Poor: slope.	Probable-----	Improbable: too sandy.	Poor: too sandy, slope.
Mazuma-----	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt, slope.
48*:----- Davey	Good-----	Probable-----	Improbable: too sandy.	Poor: too sandy.
Quincy-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy.
49*:----- Davey	Good-----	Probable-----	Improbable: too sandy.	Poor: too sandy.
Vanderhoff-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
50, 51----- Dors	Good-----	Probable-----	Probable-----	Poor: small stones, area reclaim.
52*:----- Dors	Good-----	Probable-----	Probable-----	Poor: small stones, area reclaim.
Loray-----	Good-----	Improbable: small stones.	Probable-----	Poor: too sandy, small stones, area reclaim.
53*.----- Dune land				
54, 55----- Elijah	Poor: cemented pan.	Probable-----	Improbable: thin layer.	Poor: area reclaim.
56*:----- Elijah	Poor: cemented pan.	Probable-----	Improbable: thin layer.	Poor: area reclaim.
Purdam-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim.

See footnote at end of table.

TABLE 10.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
57*: Elkcreek-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: large stones, slope.
Demast-----	Fair: depth to rock, shrink-swell, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones, slope.
58*: Elkcreek-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: large stones, slope.
Gaib-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
Simonton-----	Fair: slope.	Imprbable: excess fines.	Improbable: excess fines.	Poor: slope.
59*: Farrot-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Haw-----	Poor: slope.	Probable-----	Improbable: too sandy.	Poor: slope.
60----- Fluvaquents	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
61*: Gaib-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
Rubble land.				
62*: Gaib-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones.
Elkcreek-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: large stones.
Rock outcrop.				
63*: Gaib-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
Elkcreek-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: large stones, slope.

See footnote at end of table.

TABLE 10.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
63*: Simonton-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
64*: Gaib-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones.
Simonton----- Rock outcrop.	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
65, 66----- Garbutt	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: excess salt.
67*: Garbutt-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: excess salt.
Weso-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, area reclaim, thin layer.
68*: Garbutt-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: excess salt.
Weso-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, area reclaim, thin layer.
Trevino-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, large stones.
69*: Garbutt-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: excess salt, slope.
Trevino-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, large stones.
70----- Grandview	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt.
71*: Grandview-----	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
Garbutt-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: excess salt.

See footnote at end of table.

TABLE 10.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
72*: Graylock-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Broad Canyon-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
73----- Greenleaf	Good-----	Improbable: excess fines.	Improbable: excess fines.	Good.
74*: Greenleaf-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: slope.
Shano-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: slope.
75*: Haplaquolls-----	Poor: thin layer, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, wetness.
Xerofluvents.				
76*: Harahill-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
Willho-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
77*: Haw-----	Good-----	Probable-----	Improbable: too sandy.	Fair: too clayey, slope.
Farrot-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
78*: Haw-----	Good-----	Probable-----	Improbable: too sandy.	Fair: too clayey, slope.
Lankbush-----	Good-----	Probable-----	Improbable: too sandy.	Fair: small stones, slope.
79----- Hawsley	Good-----	Probable-----	Improbable: too sandy.	Poor: too sandy.
80*: Hotcreek-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, cemented pan, small stones.

See footnote at end of table.

TABLE 10.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
80*: Troughs-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan, small stones.
81----- Houk	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
82----- Immiant	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
83*: Immiant-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
Ruckles-----	Poor: depth to rock, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones.
Rock outcrop.				
84, 85----- Jacquith	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: cemented pan, too sandy, small stones.
86*: Jacquith-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: cemented pan, too sandy, small stones.
Quincy-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy.
87*: Karcas-----	Poor: depth to rock, shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, large stones.
Day-----	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Rock outcrop.				
88----- Kunaton	Poor: depth to rock, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan.
89*: Kunaton-----	Poor: depth to rock, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan.
Chilcott-----	Poor: cemented pan.	Probable-----	Probable-----	Poor: too clayey, area reclaim.

See footnote at end of table.

TABLE 10.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
90----- Lankbush	Good-----	Probable-----	Improbable: too sandy.	Fair: small stones.
91*: Lankbush-----	Fair: slope.	Probable-----	Improbable: too sandy.	Poor: slope.
Lanktree-----	Fair: slope.	Probable-----	Improbable: too sandy.	Poor: thin layer, slope.
92*: Lankbush-----	Good-----	Probable-----	Improbable: too sandy.	Fair: small stones.
Jenness-----	Good-----	Probable-----	Improbable: too sandy.	Fair: small stones.
93----- Lanktree	Good-----	Probable-----	Improbable: too sandy.	Poor: thin layer.
94*: Lanktree-----	Good-----	Probable-----	Improbable: too sandy.	Poor: thin layer.
Chilcott-----	Poor: cemented pan.	Probable-----	Probable-----	Poor: too clayey, area reclaim.
95----- Letha	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, excess salt.
96----- Letha	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, excess salt.
97*: Letha-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, excess salt.
Baldock-----	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt.
98----- Loray	Good-----	Improbable: small stones.	Probable-----	Poor: too sandy, small stones, area reclaim.
99*: Loray-----	Good-----	Improbable: small stones.	Probable-----	Poor: too sandy, small stones, area reclaim.
Dors-----	Good-----	Probable-----	Probable-----	Poor: small stones, area reclaim.

See footnote at end of table.

TABLE 10.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
100----- Mazuma	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt.
101*: Mazuma-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt.
Hawsley-----	Good-----	Probable-----	Improbable: too sandy.	Poor: too sandy.
102----- McKeeth	Good-----	Probable-----	Probable-----	Poor: small stones, area reclaim.
103*, 104*: Minidoka-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Fair: cemented pan, small stones, thin layer.
Minveno-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan.
105, 106----- Minveno	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan.
107*: Minveno-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan.
Minidoka-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Fair: cemented pan, small stones, thin layer.
108*: Monroe-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
Jenness-----	Good-----	Probable-----	Improbable: too sandy.	Fair: small stones.
109*: Monroe-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
Goose Creek-----	Fair: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, thin layer.
110*: Moran-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Teewinot-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.

See footnote at end of table.

TABLE 10.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
110*: Coski-----	Fair: depth to rock, thin layer, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
111----- Oland	Good-----	Probable-----	Probable-----	Poor: small stones, area reclaim.
112----- Ornea	Good-----	Probable-----	Probable-----	Poor: too sandy, small stones, area reclaim.
113*: Owsel-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Good.
Purdam-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim.
114*: Perazzo-----	Poor: slope.	Improbable: small stones.	Probable-----	Poor: too sandy, small stones, area reclaim.
Ornea-----	Fair: slope.	Probable-----	Probable-----	Poor: too sandy, small stones, area reclaim.
Abgese-----	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
115*. Pits				
116----- Power	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
117*: Power-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Chardoton-----	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
118*: Power-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Jenness-----	Good-----	Probable-----	Improbable: too sandy.	Fair: small stones.

See footnote at end of table.



TABLE 10.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
119*: Power-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Purdam-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim.
120, 121----- Purdam	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim.
122*: Purdam-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim.
Sebree-----	Poor: cemented pan.	Probable-----	Probable-----	Poor: area reclaim, excess salt, excess sodium.
Owsel-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Good.
123*: Quartzburg-----	Poor: depth to rock, slope.	Improbable: thin layer.	Improbable: thin layer.	Poor: small stones, slope.
Wagontown-----	Poor: slope.	Improbable: thin layer.	Improbable: thin layer.	Poor: small stones, slope.
124----- Quincy	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy.
125----- Quincy	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy, slope.
126*: Rainey-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope.
Brownlee-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
127*: Rainey-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope.
Schoolhouse-----	Poor: depth to rock, slope.	Improbable: thin layer.	Improbable: thin layer.	Poor: depth to rock, small stones, slope.
Oland-----	Poor: slope.	Probable-----	Probable-----	Poor: small stones, area reclaim, slope.

See footnote at end of table.

TABLE 10.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
128*: Rainey-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope.
Van Dusen-----	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
129*: Rainey-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope.
Van Dusen-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Schoolhouse-----	Poor: depth to rock, slope.	Improbable: thin layer.	Improbable: thin layer.	Poor: depth to rock, small stones, slope.
130*: Roanhide-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Bauscher-----	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
131*: Roanhide-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Bauscher-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Schoolhouse-----	Poor: depth to rock.	Improbable: thin layer.	Improbable: thin layer.	Poor: depth to rock, small stones, slope.
132*: Rock outcrop.  Rubble land.				
133----- Royal	Good-----	Improbable: excess fines.	Improbable: excess fines.	Good.
134----- Royal	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: slope.
135*: Royal-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Good.

See footnote at end of table.

TABLE 10.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
135*: Davey-----	Good-----	Probable-----	Improbable: too sandy.	Poor: too sandy.
136*: Royal-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Davey-----	Poor: slope.	Probable-----	Improbable: too sandy.	Poor: too sandy, slope.
137*: Royal-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: slope.
Shano-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Good.
Rock outcrop.				
138*: Royal-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Good.
Truesdale-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: cemented pan, small stones, thin layer.
139----- Ruckles	Poor: depth to rock, shrink-swell, large stones.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: depth to rock, too clayey, small stones.
140*: Schoolhouse-----	Poor: depth to rock, slope.	Improbable: thin layer.	Improbable: thin layer.	Poor: depth to rock, small stones, slope.
Rock outcrop.				
141----- Scism	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: cemented pan, thin layer.
142----- Scoon	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan, area reclaim.
143----- Shano	Good-----	Improbable: excess fines.	Improbable: excess fines.	Good.
144*: Shano-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Good.
Owsel-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Good.

See footnote at end of table.

TABLE 10.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
145*: Shano-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Good.
Truesdale-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: cemented pan, small stones, thin layer.
146----- Shoofly	Poor: cemented pan.	Probable-----	Probable-----	Poor: cemented pan, small stones, area reclaim.
147*: Shoofly-----	Poor: cemented pan.	Probable-----	Probable-----	Poor: cemented pan, small stones, area reclaim.
Ornea-----	Good-----	Probable-----	Probable-----	Poor: too sandy, small stones, area reclaim.
148*: Sidlake-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
Bruncan-----	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
149----- Simonton	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones.
150*: Simonton-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones.
Bauscher-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
151*: Simonton-----	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Elkcreek-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: large stones, slope.
152*: Stavely-----	Poor: slope.	Probable-----	Probable-----	Poor: small stones, area reclaim, slope.

See footnote at end of table.

TABLE 10.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
152*: Coski-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Switchback-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
153*: Switchback-----	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Grousecreek-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
154----- Timmerman	Fair: large stones.	Probable-----	Improbable: too sandy.	Poor: too sandy, large stones, area reclaim.
155, 156----- Timmerman	Good-----	Probable-----	Improbable: too sandy.	Poor: too sandy.
157*: Trevino-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, large stones.
Garbutt-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: excess salt.
Weso-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, area reclaim, thin layer.
158*: Trevino-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, large stones, slope.
Minidoka-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Fair: cemented pan, small stones, thin layer.
159*: Trevino-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, large stones.
Rock outcrop.				

See footnote at end of table.

TABLE 10.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
160*: Trosi-----	Poor: cemented pan.	Probable-----	Probable-----	Poor: cemented pan, too clayey, small stones.
Chilcott-----	Poor: cemented pan, shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, small stones.
Tenmile-----	Good-----	Probable-----	Probable-----	Poor: too clayey, small stones, area reclaim.
161, 162----- Truesdale	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: cemented pan, small stones, thin layer.
163. Typic Torriorthents				
164*: Typic Torriorthents. Badland.				
165*: Typic Torriorthents. Rubble land.				
166*. Urban land				
167, 168----- Vanderhoff	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
169*: Vanderhoff-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
Buko-----	Good-----	Probable-----	Probable-----	Poor: small stones, area reclaim.
Loray-----	Good-----	Improbable: small stones.	Probable-----	Poor: too sandy, small stones, area reclaim.
170----- Vining	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
171*: Willhill-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.

See footnote at end of table.

TABLE 10.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
171*: Cottle-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones.
172*, 173*: Xeric Torriorthents.  Xerollic Camborthids.				
174----- Yutruue	Good-----	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, area reclaim, small stones.

\* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 11.--WATER MANAGEMENT

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Limitations for--			Features affecting--	
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation
1----- Abgese	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water----	Slope.
2----- Abgese	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water----	Slope.
3----- Abgese	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water----	Droughty.
4----- Arbridge	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water----	Soil blowing, cemented pan.
5*: Arbridge-----	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water----	Soil blowing, cemented pan, slope.
Buko-----	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water----	Droughty, soil blowing.
6*: Badge-----	Severe: slope.	Moderate: thin layer.	Severe: no water.	Deep to water----	Slope, droughty.
Immiant-----	Severe: slope.	Severe: thin layer.	Severe: no water.	Deep to water----	Slope, depth to rock.
Rubble land.					
7----- Bahem	Moderate: seepage.	Severe: piping.	Severe: no water.	Deep to water----	Favorable.
8----- Bahem	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water----	Slope.
9*: Bahem-----	Moderate: seepage.	Severe: piping.	Severe: no water.	Deep to water----	Favorable.
Minidoka-----	Moderate: seepage, cemented pan.	Severe: piping.	Severe: no water.	Deep to water----	Cemented pan, erodes easily.
Trevino-----	Severe: depth to rock.	Severe: piping.	Severe: no water.	Deep to water----	Depth to rock.
10----- Baldock	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill, salty water.	Frost action, excess salt.	Wetness, droughty, erodes easily.
11----- Bram	Moderate: seepage.	Severe: piping.	Severe: slow refill.	Deep to water----	Droughty, erodes easily, excess salt.

See footnote at end of table.



TABLE 11.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--	
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation
12----- Bramwell	Slight-----	Severe: piping, excess salt.	Severe: slow refill.	Percs slowly, excess salt.	Wetness, percs slowly.
13----- Brinegar	Moderate: seepage.	Moderate: piping, wetness.	Severe: slow refill.	Deep to water----	Favorable.
14*: Broad Canyon-----	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water----	Slope, droughty.
Coski-----	Severe: seepage, slope.	Moderate: thin layer, seepage, piping.	Severe: no water.	Deep to water----	Slope, droughty.
15*: Broad Canyon-----	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water----	Slope, droughty.
Grousecreek-----	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water----	Droughty, slope.
16*: Broad Canyon-----	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water----	Slope, droughty.
Switchback-----	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water----	Depth to rock, slope.
17----- Brownlee	Moderate: seepage, slope.	Moderate: piping.	Severe: no water.	Deep to water----	Slope.
18*: Brownlee-----	Severe: slope.	Moderate: piping.	Severe: no water.	Deep to water----	Slope.
Immiant-----	Severe: slope.	Severe: thin layer.	Severe: no water.	Deep to water----	Slope, depth to rock.
19*: Brownlee-----	Severe: slope.	Moderate: piping.	Severe: no water.	Deep to water----	Slope.
Van Dusen-----	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water----	Slope.
20*: Bruncan-----	Severe: depth to rock, cemented pan.	Severe: thin layer.	Severe: no water.	Deep to water----	Large stones, depth to rock, cemented pan.
Troughs-----	Severe: cemented pan.	Severe: piping, large stones.	Severe: no water.	Deep to water----	Large stones, droughty.

See footnote at end of table.

TABLE 11.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--	
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation
21----- Buko	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water----	Droughty, soil blowing.
22----- Buko	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water----	Droughty, soil blowing.
23----- Chardoton	Moderate: seepage, cemented pan.	Moderate: thin layer, hard to pack.	Severe: no water.	Deep to water----	Percs slowly.
24----- Chilcott	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water----	Percs slowly, cemented pan.
25----- Chilcott	Moderate: cemented pan, slope.	Severe: thin layer.	Severe: no water.	Deep to water----	Slope, percs slowly, cemented pan.
26*: Chilcott-----	Moderate: cemented pan, slope.	Severe: thin layer.	Severe: no water.	Deep to water----	Slope, percs slowly, cemented pan.
Day-----  Rock outcrop.	Severe: slope.	Severe: hard to pack.	Severe: no water.	Deep to water----	Slope, slow intake, percs slowly.
27*: Chilcott-----	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water----	Slope, percs slowly, cemented pan.
Elijah-----	Moderate: seepage, cemented pan, slope.	Severe: seepage.	Severe: no water.	Deep to water----	Cemented pan, slope, erodes easily.
28*: Chilcott-----	Moderate: cemented pan, slope.	Severe: thin layer.	Severe: no water.	Deep to water----	Slope, percs slowly, cemented pan.
Kunaton-----	Severe: cemented pan.	Severe: thin layer.	Severe: no water.	Deep to water----	Slope, percs slowly, depth to rock.
Chardoton-----	Moderate: seepage, cemented pan, slope.	Moderate: thin layer, hard to pack.	Severe: no water.	Deep to water----	Slope, percs slowly.
29*: Chilcott-----	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water----	Slope, percs slowly, cemented pan.
Power-----	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water----	Slope, erodes easily.

See footnote at end of table.

TABLE 11.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--	
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation
30*. Cinder land					
31----- Colthorp	Severe: cemented pan.	Severe: thin layer.	Severe: no water.	Deep to water----	Slope, depth to rock, cemented pan.
32*: Colthorp-----	Severe: cemented pan.	Severe: piping.	Severe: no water.	Deep to water----	Slope, depth to rock, cemented pan.
Chilcott-----	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water----	Slope, percs slowly, cemented pan.
33*: Colthorp-----	Severe: cemented pan.	Severe: thin layer.	Severe: no water.	Deep to water----	Slope, depth to rock, cemented pan.
Kunaton-----	Severe: cemented pan.	Severe: piping.	Severe: no water.	Deep to water----	Percs slowly, depth to rock, cemented pan.
34*: Colthorp-----	Severe: cemented pan, slope.	Severe: thin layer.	Severe: no water.	Deep to water----	Slope, depth to rock, cemented pan.
Kunaton-----	Severe: cemented pan, slope.	Severe: thin layer.	Severe: no water.	Deep to water----	Slope, percs slowly, depth to rock.
Rubble land.					
35*: Colthorp-----	Severe: cemented pan.	Severe: thin layer.	Severe: no water.	Deep to water----	Slope, depth to rock, cemented pan.
Minveno-----	Severe: cemented pan.	Severe: piping.	Severe: no water.	Deep to water----	Slope, depth to rock.
36*: Colthorp-----	Severe: cemented pan, slope.	Severe: thin layer.	Severe: no water.	Deep to water----	Slope, depth to rock, cemented pan.
Rock outcrop.					
37*: Coski-----	Severe: seepage, slope.	Moderate: thin layer, seepage, piping.	Severe: no water.	Deep to water----	Slope, droughty, soil blowing.
Broad Canyon----	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water----	Slope, droughty.

See footnote at end of table.

TABLE 11.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--	
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation
38*: Cottle-----	Severe: depth to rock, slope.	Severe: thin layer.	Severe: no water.	Deep to water----	Slope, large stones, droughty.
Sidlake-----	Severe: slope.	Severe: thin layer.	Severe: no water.	Deep to water----	Slope, depth to rock.
39*: Cottle-----	Severe: depth to rock, slope.	Severe: thin layer.	Severe: no water.	Deep to water----	Slope, large stones, droughty.
Trevino-----	Severe: depth to rock, slope.	Severe: piping.	Severe: no water.	Deep to water----	Slope, depth to rock.
Rock outcrop.					
40*: Cottle-----	Severe: depth to rock, slope.	Severe: thin layer.	Severe: no water.	Deep to water----	Slope, large stones, droughty.
Willhill-----	Severe: slope.	Severe: large stones.	Severe: no water.	Deep to water----	Slope, large stones, droughty.
41----- Cowgil	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water----	Slope, large stones, droughty.
42----- Cowgil	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water----	Large stones, droughty.
43*: Cowgil-----	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water----	Slope, large stones, droughty.
Rubble land.					
Rock outcrop.					
44----- Davey	Severe: seepage, slope.	Severe: seepage, piping.	Severe: no water.	Deep to water----	Slope, droughty, fast intake.
45----- Davey	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water----	Droughty, fast intake.
46*: Davey-----	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water----	Slope, droughty, fast intake.
Buko-----	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water----	Droughty, soil blowing.

See footnote at end of table.

TABLE 11.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--	
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation
47*: Davey-----	Severe: seepage, slope.	Severe: seepage, piping.	Severe: no water.	Deep to water----	Slope, droughty, fast intake.
Mazuma-----	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water----	Slope, soil blowing, excess salt.
48*: Davey-----	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water----	Slope, droughty, fast intake.
Quincy-----	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water----	Slope, droughty, fast intake.
49*: Davey-----	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water----	Droughty, fast intake.
Vanderhoff-----	Moderate: seepage, depth to rock.	Severe: piping.	Severe: no water.	Deep to water----	Soil blowing, depth to rock.
50----- Dors	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water----	Droughty, soil blowing.
51----- Dors	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water----	Droughty, slope.
52*: Dors-----	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water----	Droughty, soil blowing.
Loray-----	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water----	Droughty.
53*. Dune land					
54----- Elijah	Moderate: seepage, cemented pan.	Severe: seepage.	Severe: no water.	Deep to water----	Cemented pan, erodes easily.
55----- Elijah	Severe: slope.	Severe: seepage.	Severe: no water.	Deep to water----	Cemented pan, slope, erodes easily.
56*: Elijah-----	Moderate: seepage, cemented pan, slope.	Severe: seepage.	Severe: no water.	Deep to water----	Cemented pan, slope, erodes easily.
Purdam-----	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water----	Slope, cemented pan, rooting depth.

See footnote at end of table.

TABLE 11.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--	
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation
57*: Elkcreek-----	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water----	Slope, depth to rock.
Demast-----	Severe: slope.	Moderate: thin layer, piping, large stones.	Severe: no water.	Deep to water----	Slope.
58*: Elkcreek-----	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water----	Slope, depth to rock.
Gaib-----	Severe: depth to rock, slope.	Severe: thin layer.	Severe: no water.	Deep to water----	Slope, droughty, depth to rock.
Simonton-----	Severe: seepage, slope.	Moderate: thin layer, piping.	Severe: no water.	Deep to water----	Slope.
59*: Farrot-----	Severe: seepage, slope.	Severe: thin layer.	Severe: no water.	Deep to water----	Slope, droughty, soil blowing.
Haw-----	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water----	Slope.
60----- Fluvaquents	Severe: seepage.	Severe: piping, wetness.	Severe: slow refill, cutbanks cave.	Percs slowly, frost action, cutbanks cave.	Wetness, droughty, percs slowly.
61*: Gaib-----	Severe: depth to rock, slope.	Severe: thin layer.	Severe: no water.	Deep to water----	Slope, droughty, depth to rock.
Rubble land.					
62*: Gaib-----	Severe: depth to rock, slope.	Severe: thin layer.	Severe: no water.	Deep to water----	Slope, droughty, depth to rock.
Elkcreek-----	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water----	Slope, depth to rock.
Rock outcrop.					
63*: Gaib-----	Severe: depth to rock, slope.	Severe: thin layer.	Severe: no water.	Deep to water----	Slope, droughty, depth to rock.
Elkcreek-----	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water----	Slope, depth to rock.

See footnote at end of table.

TABLE 11.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--	
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation
63*: Simonton-----	Severe: seepage, slope.	Moderate: thin layer, piping.	Severe: no water.	Deep to water----	Slope.
64*: Gaib-----	Severe: depth to rock.	Severe: thin layer.	Severe: no water.	Deep to water----	Slope, droughty, depth to rock.
Simonton-----	Severe: seepage.	Moderate: thin layer, piping.	Severe: no water.	Deep to water----	Slope.
Rock outcrop.					
65----- Garbutt	Moderate: seepage.	Severe: piping.	Severe: no water.	Deep to water----	Erodes easily, excess salt.
66----- Garbutt	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water----	Slope, erodes easily, excess salt.
67*: Garbutt-----	Moderate: seepage.	Severe: piping.	Severe: no water.	Deep to water----	Erodes easily, excess salt.
Weso-----	Severe: seepage.	Severe: excess salt.	Severe: no water.	Deep to water----	Excess salt.
68*: Garbutt-----	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water----	Slope, erodes easily, excess salt.
Weso-----	Severe: seepage.	Severe: excess salt.	Severe: no water.	Deep to water----	Slope, excess salt.
Trevino-----	Severe: depth to rock.	Severe: piping.	Severe: no water.	Deep to water----	Slope, depth to rock.
69*: Garbutt-----	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water----	Slope, erodes easily, excess salt.
Trevino-----	Severe: depth to rock, slope.	Severe: piping.	Severe: no water.	Deep to water----	Slope, depth to rock.
70----- Grandview	Moderate: seepage.	Severe: piping.	Severe: slow refill.	Deep to water----	Percs slowly, erodes easily.
71*: Grandview-----	Slight-----	Moderate: piping, excess salt.	Severe: no water.	Deep to water----	Erodes easily, excess salt.
Garbutt-----	Moderate: seepage.	Severe: piping.	Severe: no water.	Deep to water----	Erodes easily, excess salt.

See footnote at end of table.

TABLE 11.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--	
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation
72*: Graylock-----	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water----	Slope, droughty.
Broad Canyon-----	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water----	Slope, droughty.
73----- Greenleaf	Slight-----	Severe: piping.	Severe: no water.	Deep to water----	Erodes easily.
74*: Greenleaf-----	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water----	Slope, erodes easily.
Shano-----	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water----	Slope.
75*: Haplaquolls-----	Slight-----	Severe: piping, wetness.	Moderate: slow refill.	Flooding, frost action.	Wetness, erodes easily, flooding.
Xerofluvents.					
76*: Harahill-----	Moderate: seepage, depth to rock, slope.	Severe: thin layer.	Severe: no water.	Deep to water----	Slope, depth to rock.
Willho-----	Moderate: cemented pan, slope.	Severe: thin layer.	Severe: no water.	Deep to water----	Percs slowly, cemented pan, slope.
77*: Haw-----	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water----	Slope.
Farrot-----	Severe: seepage, slope.	Severe: thin layer.	Severe: no water.	Deep to water----	Slope, droughty, soil blowing.
78*: Haw-----	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water----	Slope.
Lankbush-----	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water----	Slope.
79----- Hawsley	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water----	Slope, droughty, fast intake.

See footnote at end of table.



TABLE 11.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--	
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation
80*: Hotcreek-----	Severe: depth to rock, cemented pan, slope.	Severe: thin layer.	Severe: no water.	Deep to water----	Slope, droughty, depth to rock.
Troughs-----	Severe: cemented pan.	Severe: thin layer.	Severe: no water.	Deep to water----	Slope, droughty, depth to rock.
81----- Houk	Slight-----	Severe: hard to pack.	Severe: slow refill.	Percs slowly, flooding, frost action.	Wetness, percs slowly, erodes easily.
82----- Immiant	Moderate: depth to rock, slope.	Severe: thin layer.	Severe: no water.	Deep to water----	Slope, depth to rock.
83*: Immiant-----	Severe: slope.	Severe: thin layer.	Severe: no water.	Deep to water----	Slope, depth to rock.
Ruckles-----	Severe: depth to rock.	Severe: thin layer.	Severe: no water.	Deep to water----	Slope, droughty, percs slowly.
Rock outcrop.					
84----- Jacquith	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water----	Droughty, fast intake, soil blowing.
85----- Jacquith	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water----	Droughty, fast intake, soil blowing.
86*: Jacquith-----	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water----	Droughty, fast intake, soil blowing.
Quincy-----	Severe: seepage, slope.	Severe: seepage, piping.	Severe: no water.	Deep to water----	Slope, droughty, fast intake.
87*: Karcas-----	Severe: slope.	Severe: thin layer.	Severe: no water.	Deep to water----	Slope, large stones, slow intake.
Day-----	Severe: slope.	Severe: hard to pack.	Severe: no water.	Deep to water----	Slope, slow intake, percs slowly.
Rock outcrop.					
88----- Kunaton	Severe: cemented pan.	Severe: piping.	Severe: no water.	Deep to water----	Percs slowly, depth to rock, cemented pan.

See footnote at end of table.

TABLE 11.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--	
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation
89*: Kunaton-----	Severe: cemented pan.	Severe: piping.	Severe: no water.	Deep to water----	Percs slowly, depth to rock, cemented pan.
Chilcott-----	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water----	Slope, percs slowly, cemented pan.
90----- Lankbush	Moderate: seepage.	Severe: piping.	Severe: no water.	Deep to water----	Favorable.
91*: Lankbush-----	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water----	Slope.
Lanktree-----	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water----	Percs slowly, slope.
92*: Lankbush-----	Moderate: seepage.	Severe: piping.	Severe: no water.	Deep to water----	Favorable.
Jenness-----	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water----	Erodes easily.
93----- Lanktree	Moderate: seepage.	Severe: piping.	Severe: no water.	Deep to water----	Percs slowly.
94*: Lanktree-----	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water----	Percs slowly, slope.
Chilcott-----	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water----	Slope, percs slowly, cemented pan.
95----- Letha	Severe: seepage.	Severe: piping.	Severe: cutbanks cave.	Deep to water----	Soil blowing, excess salt.
96----- Letha	Severe: seepage.	Severe: piping.	Severe: cutbanks cave.	Deep to water----	Erodes easily, excess salt.
97*: Letha-----	Severe: seepage.	Severe: piping.	Severe: cutbanks cave.	Deep to water----	Erodes easily, excess salt.
Baldock-----	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill, salty water.	Frost action, excess salt.	Wetness, droughty, erodes easily.
98----- Loray	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water----	Slope, droughty.
99*: Loray-----	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water----	Slope, droughty.

See footnote at end of table.

TABLE 11.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--	
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation
99*: Dors-----	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water----	Droughty, soil blowing, slope.
100----- Mazuma	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water----	Soil blowing, excess salt.
101*: Mazuma-----	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water----	Slope, soil blowing, excess salt.
Hawsley-----	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water----	Slope, droughty, fast intake.
102----- McKeeth	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water----	Droughty, rooting depth, slope.
103*: Minidoka-----	Moderate: seepage, cemented pan.	Severe: piping.	Severe: no water.	Deep to water----	Cemented pan, erodes easily.
Minveno-----	Severe: cemented pan.	Severe: piping.	Severe: no water.	Deep to water----	Depth to rock.
104*: Minidoka-----	Moderate: seepage, cemented pan, slope.	Severe: piping.	Severe: no water.	Deep to water----	Slope, cemented pan, erodes easily.
Minveno-----	Severe: cemented pan.	Severe: piping.	Severe: no water.	Deep to water----	Slope, depth to rock.
105----- Minveno	Severe: cemented pan.	Severe: piping.	Severe: no water.	Deep to water----	Depth to rock.
106----- Minveno	Severe: cemented pan.	Severe: piping.	Severe: no water.	Deep to water----	Slope, depth to rock.
107*: Minveno-----	Severe: cemented pan.	Severe: piping.	Severe: no water.	Deep to water----	Slope, depth to rock.
Minidoka-----	Moderate: seepage, cemented pan, slope.	Severe: piping.	Severe: no water.	Deep to water----	Slope, cemented pan, erodes easily.
108*: Monroe-----	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water----	Soil blowing.
Jenness-----	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water----	Erodes easily.

See footnote at end of table.

TABLE 11.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--	
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation
109*: Monroe-----	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water----	Soil blowing.
Goose Creek-----	Moderate: seepage.	Moderate: piping, wetness.	Severe: slow refill.	Perchs slowly-----	Wetness, perchs slowly.
110*: Moran-----	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water----	Droughty, slope.
Teewinot-----	Severe: depth to rock, slope.	Severe: large stones.	Severe: no water.	Deep to water----	Slope, large stones, droughty.
Coski-----	Severe: seepage, slope.	Moderate: thin layer, seepage, piping.	Severe: no water.	Deep to water----	Slope, droughty.
111----- Oland	Severe: slope.	Severe: seepage.	Severe: no water.	Deep to water----	Slope.
112----- Ornea	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water----	Slope, droughty.
113*: Owsel-----	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water----	Slope, erodes easily.
Purdam-----	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water----	Slope, cemented pan, rooting depth.
114*: Perazzo-----	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water----	Slope, droughty.
Ornea-----	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water----	Slope, droughty.
Abgese-----	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water----	Slope, droughty.
115*. Pits					
116----- Power	Moderate: seepage.	Severe: piping.	Severe: no water.	Deep to water----	Erodes easily.
117*: Power-----	Moderate: seepage.	Severe: piping.	Severe: no water.	Deep to water----	Erodes easily.

See footnote at end of table.

TABLE 11.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--	
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation
117*: Chardoton-----	Moderate: seepage, cemented pan.	Moderate: thin layer, hard to pack.	Severe: no water.	Deep to water----	Soil blowing, percs slowly.
118*: Power-----	Moderate: seepage.	Severe: piping.	Severe: no water.	Deep to water----	Erodes easily.
Jenness-----	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water----	Erodes easily.
119*: Power-----	Moderate: seepage.	Severe: piping.	Severe: no water.	Deep to water----	Erodes easily.
Purdam-----	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water----	Cemented pan, rooting depth.
120----- Purdam	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water----	Cemented pan, rooting depth.
121----- Purdam	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water----	Slope, cemented pan, rooting depth.
122*: Purdam-----	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water----	Slope, cemented pan, rooting depth.
Sebree-----	Severe: seepage.	Severe: piping, excess sodium, excess salt.	Severe: no water.	Deep to water----	Percs slowly, cemented pan.
Owsel-----	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water----	Slope, erodes easily.
123*: Quartzburg-----	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water----	Slope, droughty, fast intake.
Wagontown-----	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water----	Large stones, droughty, slope.
124----- Quincy	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water----	Slope, droughty, fast intake.
125----- Quincy	Severe: seepage, slope.	Severe: seepage, piping.	Severe: no water.	Deep to water----	Slope, droughty, fast intake.
126*: Rainey-----	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water----	Slope, soil blowing, depth to rock.

See footnote at end of table.

TABLE 11.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--	
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation
126*: Brownlee-----	Severe: slope.	Moderate: piping.	Severe: no water.	Deep to water----	Slope.
127*: Rainey-----	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water----	Slope, soil blowing, depth to rock.
Schoolhouse-----	Severe: depth to rock, slope.	Severe: seepage.	Severe: no water.	Deep to water----	Slope, droughty, fast intake.
Oland-----	Severe: slope.	Severe: seepage.	Severe: no water.	Deep to water----	Slope.
128*: Rainey-----	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water----	Slope, soil blowing, depth to rock.
Van Dusen-----	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water----	Slope.
129*: Rainey-----	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water----	Slope, soil blowing, depth to rock.
Van Dusen-----	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water----	Slope.
Schoolhouse-----	Severe: depth to rock, slope.	Severe: seepage.	Severe: no water.	Deep to water----	Slope, droughty, fast intake.
130*: Roanhide-----	Severe: seepage, slope.	Severe: thin layer.	Severe: no water.	Deep to water----	Droughty, soil blowing, depth to rock.
Bauscher-----	Severe: slope.	Moderate: piping.	Severe: no water.	Deep to water----	Slope.
131*: Roanhide-----	Severe: seepage, slope.	Severe: thin layer.	Severe: no water.	Deep to water----	Droughty, soil blowing, depth to rock.
Bauscher-----	Severe: slope.	Moderate: piping.	Severe: no water.	Deep to water----	Slope.
Schoolhouse-----	Severe: depth to rock, slope.	Severe: seepage.	Severe: no water.	Deep to water----	Slope, droughty, fast intake.
132*: Rock outcrop. Rubble land.					

See footnote at end of table.

TABLE 11.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--	
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation
133----- Royal	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water----	Soil blowing.
134----- Royal	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water----	Slope, soil blowing.
135*: Royal-----	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water----	Slope, soil blowing.
Davey-----	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water----	Slope, droughty, fast intake.
136*: Royal-----	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water----	Slope, soil blowing.
Davey-----	Severe: seepage, slope.	Severe: seepage, piping.	Severe: no water.	Deep to water----	Slope, droughty, fast intake.
137*: Royal-----	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water----	Slope, soil blowing.
Shano-----	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water----	Slope.
Rock outcrop.					
138*: Royal-----	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water----	Soil blowing.
Truesdale-----	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water----	Droughty, soil blowing.
139----- Ruckles	Severe: depth to rock.	Severe: hard to pack, large stones.	Severe: no water.	Deep to water----	Slope, large stones, droughty.
140*: Schoolhouse-----	Severe: depth to rock, slope.	Severe: seepage.	Severe: no water.	Deep to water----	Slope, droughty, fast intake.
Rock outcrop.					
141----- Scism	Moderate: seepage, cemented pan.	Severe: piping.	Severe: no water.	Deep to water----	Cemented pan, erodes easily.
142----- Scoon	Severe: seepage, cemented pan.	Severe: seepage.	Severe: no water.	Deep to water----	Soil blowing, cemented pan.

See footnote at end of table.

TABLE 11.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--	
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation
143----- Shano	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water----	Slope.
144*: Shano-----	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water----	Slope.
Owsel-----	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water----	Slope, erodes easily.
145*: Shano-----	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water----	Soil blowing, slope.
Truesdale-----	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water----	Slope, droughty, soil blowing.
146----- Shoofly	Severe: seepage, cemented pan.	Severe: seepage.	Severe: no water.	Deep to water----	Percs slowly, cemented pan.
147*: Shoofly-----	Severe: seepage, cemented pan.	Severe: seepage.	Severe: no water.	Deep to water----	Slope, percs slowly, cemented pan.
Ornea-----	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water----	Slope, droughty.
148*: Sidlake-----	Moderate: seepage, depth to rock, slope.	Severe: thin layer.	Severe: no water.	Deep to water----	Slope, depth to rock.
Bruncan-----	Severe: depth to rock, cemented pan.	Severe: piping.	Severe: no water.	Deep to water----	Depth to rock, cemented pan, slope.
149----- Simonton	Severe: seepage.	Moderate: thin layer, piping.	Severe: no water.	Deep to water----	Slope.
150*: Simonton-----	Severe: seepage, slope.	Moderate: thin layer, piping.	Severe: no water.	Deep to water----	Slope.
Bauscher-----	Severe: slope.	Moderate: piping.	Severe: no water.	Deep to water----	Slope.
151*: Simonton-----	Severe: seepage, slope.	Moderate: thin layer, piping.	Severe: no water.	Deep to water----	Slope.
Elkcreek-----	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water----	Slope, depth to rock.

See footnote at end of table.



TABLE 11.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--	
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation
152*: Stavelly-----	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water----	Slope, droughty, soil blowing.
Coski-----	Severe: seepage, slope.	Moderate: thin layer, seepage, piping.	Severe: no water.	Deep to water----	Slope, droughty.
Switchback-----	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water----	Depth to rock, slope.
153*: Switchback-----	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water----	Depth to rock, slope.
Grousecreek-----	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Deep to water----	Droughty, slope.
154----- Timmerman	Severe: seepage, slope.	Severe: seepage, large stones.	Severe: no water.	Deep to water----	Slope, large stones, droughty.
155----- Timmerman	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water----	Droughty, soil blowing.
156----- Timmerman	Severe: seepage, slope.	Severe: seepage, piping.	Severe: no water.	Deep to water----	Droughty, soil blowing, slope.
157*: Trevino-----	Severe: depth to rock.	Severe: piping.	Severe: no water.	Deep to water----	Slope, depth to rock.
Garbutt-----	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water----	Slope, erodes easily, excess salt.
Weso-----	Severe: seepage.	Severe: excess salt.	Severe: no water.	Deep to water----	Slope, excess salt.
158*: Trevino-----	Severe: depth to rock, slope.	Severe: piping.	Severe: no water.	Deep to water----	Slope, depth to rock.
Minidoka-----	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water----	Slope, cemented pan, erodes easily.
159*: Trevino-----	Severe: depth to rock.	Severe: piping.	Severe: no water.	Deep to water----	Slope, depth to rock.
Rock outcrop.					

See footnote at end of table.

TABLE 11.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--	
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation
160*: Trosi-----	Severe: seepage, cemented pan.	Severe: seepage.	Severe: no water.	Deep to water----	Slope, large stones, droughty.
Chilcott-----	Moderate: cemented pan, slope.	Severe: thin layer.	Severe: no water.	Deep to water----	Slope, percs slowly, cemented pan.
Tenmile-----	Severe: seepage, slope.	Moderate: thin layer, large stones.	Severe: no water.	Deep to water----	Slope, droughty, percs slowly.
161----- Truesdale	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water----	Droughty, soil blowing.
162----- Truesdale	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water----	Slope, droughty, soil blowing.
163. Typic Torriorthents					
164*: Typic Torriorthents.  Badland.					
165*: Typic Torriorthents.  Rubble land.					
166*. Urban land					
167----- Vanderhoff	Moderate: seepage, depth to rock.	Severe: piping.	Severe: no water.	Deep to water----	Soil blowing, depth to rock.
168----- Vanderhoff	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water----	Soil blowing, depth to rock, slope.
169*: Vanderhoff-----	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water----	Soil blowing, depth to rock, slope.
Buko-----	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water----	Droughty, soil blowing.
Loray-----	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water----	Slope, droughty.
170----- Vining	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water----	Slope, depth to rock.

See footnote at end of table.

TABLE 11.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--	
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation
171*: Willhill-----	Severe: slope.	Severe: large stones.	Severe: no water.	Deep to water----	Slope, large stones, droughty.
Cottle-----	Severe: depth to rock, slope.	Severe: thin layer.	Severe: no water.	Deep to water----	Slope, large stones, droughty.
172*, 173*: Xeric Torriorthents.					
Xerollic Camborthids.					
174----- Yutruue	Moderate: slope.	Severe: piping.	Severe: no water.	Deep to water----	Slope, slow intake, percs slowly.

\* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 12.--ENGINEERING INDEX PROPERTIES

(The symbol &lt; means less than; &gt; means more than. Absence of an entry indicates that data were not estimated)

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
1, 2----- Abgese	0-6	Loamy sand-----	SM	A-2	0	85-95	75-90	50-60	15-25	---	NP
	6-31	Gravelly sandy loam, sandy clay loam.	SM-SC, SC	A-2, A-4	0-5	65-80	55-75	35-50	25-45	20-40	5-20
	31-60	Very gravelly sandy loam.	GM, SM	A-1	0-5	50-60	35-50	25-35	15-20	15-20	NP-5
3----- Abgese	0-6	Sandy loam-----	SM	A-2, A-4	0-5	80-100	75-100	50-65	30-45	15-20	NP-5
	6-31	Gravelly sandy loam, sandy clay loam.	SM-SC, SC	A-2, A-4	0-5	65-80	55-75	35-50	25-45	20-40	5-20
	31-60	Very gravelly sandy loam.	GM, SM	A-1	0-5	50-60	35-50	25-35	15-20	15-20	NP-5
4----- Arbidge	0-8	Fine sandy loam	SM-SC	A-4	0	90-100	85-100	70-85	35-50	20-25	5-10
	8-17	Loam, sandy clay loam, clay loam.	CL	A-6	0	90-100	85-100	60-85	50-70	30-40	10-15
	17-27	Sandy loam, fine sandy loam, loam.	SM-SC, SC, CL-ML, CL	A-4	0	85-100	80-100	50-80	40-60	20-30	5-10
	27-34	Indurated-----	SM, SM-SC	A-2, A-4	0	85-100	80-100	50-80	30-50	15-25	NP-10
5*: Arbidge-----	0-8	Loam-----	CL-ML	A-4	0	90-100	90-100	65-85	50-70	20-25	5-10
	8-17	Loam, sandy clay loam, clay loam.	CL	A-6	0	90-100	85-100	60-85	50-70	30-40	10-15
	17-27	Sandy loam, fine sandy loam, loam.	SM-SC, SC, CL-ML, CL	A-4	0	85-100	80-100	50-80	40-60	20-30	5-10
	27-34	Indurated-----	SM, SM-SC	A-2, A-4	0	85-100	80-100	50-80	30-50	15-25	NP-10
Buko-----	0-7	Fine sandy loam	SM	A-4	0	100	85-95	60-85	35-50	15-25	NP-5
	7-24	Clay loam, loam, silt loam.	CL, CL-ML	A-4, A-6	0	100	95-100	85-95	60-85	25-35	5-15
	24-60	Very gravelly loamy sand, very gravelly sand, extremely cobbly sand.	GP-GM, GM, GP	A-1	5-60	40-50	25-50	15-35	0-15	---	NP
6*: Badge-----	0-3	Gravelly loam----	CL-ML, CL, GM-GC, GC	A-4, A-6	0-5	60-75	55-75	45-65	35-55	25-35	5-15
	3-21	Gravelly loam----	CL-ML, CL, GM-GC, GC	A-4, A-6	0-5	60-75	55-75	45-65	35-55	25-35	5-15
	21-43	Very gravelly clay loam.	CL, GC	A-7, A-2	5-20	40-65	35-60	30-60	25-55	40-50	20-30
	43-54	Very stony clay loam.	GC	A-7, A-2	25-50	40-65	40-60	30-50	25-40	40-50	20-30
	54-58	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnotes at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches Pct	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	<u>In</u>										
6*: Immiant-----	0-10	Gravelly loam----	ML, GM	A-4	0-5	60-80	60-75	45-65	35-55	30-35	5-10
	10-20	Loam, clay loam, gravelly clay loam.	ML, CL	A-6, A-7	0-10	75-95	70-90	55-80	50-65	35-45	10-20
	20-28	Gravelly clay loam, cobbly loam, cobbly clay loam.	ML, CL, GM, GC	A-6, A-7	5-15	70-90	65-85	55-75	40-60	35-45	10-20
	28-32	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rubble land.											
7, 8----- Bahem	0-3	Silt loam-----	ML, CL-ML	A-4	0	100	100	95-100	80-90	20-30	NP-10
	3-46	Silt loam, loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	75-90	15-25	NP-5
	46-60	Fine sandy loam, very fine sandy loam.	ML	A-4	0	100	100	90-100	70-80	---	NP
9*: Bahem-----	0-3	Silt loam-----	ML, CL-ML	A-4	0	100	100	95-100	80-90	20-30	NP-10
	3-46	Silt loam, loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	75-90	15-25	NP-5
	46-60	Fine sandy loam, very fine sandy loam.	ML	A-4	0	100	100	90-100	70-80	---	NP
Minidoka-----	0-4	Silt loam-----	ML, CL-ML	A-4	0-5	95-100	90-100	85-95	75-95	20-30	NP-10
	4-27	Silt loam-----	ML, CL-ML	A-4	0-5	95-100	95-100	95-100	90-100	20-30	NP-10
	27-43	Indurated-----	---	---	---	---	---	---	---	---	---
	43-60	Silt loam-----	ML, CL-ML	A-4	0-5	90-100	85-100	80-95	70-90	20-30	NP-10
Trevino-----	0-5	Stony loam-----	CL-ML	A-4	5-15	95-100	90-100	75-95	55-75	20-30	5-10
	5-12	Loam, stony loam, silt loam.	CL-ML	A-4	0-25	85-100	85-100	75-100	55-80	20-30	5-10
	12-18	Fine sandy loam, loam, cobbly loam.	SM, ML, CL-ML, SM-SC	A-4	0-25	75-100	70-90	55-75	40-55	20-30	NP-10
	18-22	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
10----- Baldock	0-7	Loam-----	ML, CL-ML	A-4	0	100	100	75-95	55-85	20-30	NP-10
	7-60	Loam, silt loam	CL, CL-ML	A-4, A-6	0	95-100	95-100	75-95	55-85	25-35	5-15
11----- Bram	0-11	Silt loam-----	ML, CL-ML	A-4	0-5	90-95	90-95	90-95	75-90	20-30	NP-10
	11-36	Silt loam, loam, very fine sandy loam.	ML, CL-ML	A-4	0-5	90-95	90-95	90-95	75-90	20-30	NP-10
	36-65	Silt loam, loam	ML, CL-ML	A-4	0	90-100	90-100	85-95	75-90	20-30	NP-10
12----- Bramwell	0-9	Silty clay loam	CL	A-6	0	100	100	95-100	80-95	25-40	10-20
	9-44	Silt loam, silty clay loam.	CL, CL-ML	A-4, A-6	0	100	100	95-100	85-95	20-40	5-20
	44-60	Stratified fine sandy loam to silt loam.	CL-ML, CL	A-4, A-6	0	100	100	85-95	50-70	15-30	5-15

See footnotes at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
13----- Brinegar	0-8	Loam-----	ML	A-4	0	95-100	95-100	75-90	60-75	30-35	5-10
	8-25	Loam-----	ML	A-4	0	95-100	95-100	75-90	60-75	30-35	5-10
	25-47	Loam, sandy clay loam, clay loam.	ML, CL	A-6, A-7	0	90-100	90-100	65-90	60-80	35-45	10-20
	47-60	Silty clay loam	CL	A-7	0	95-100	95-100	85-100	80-95	40-45	15-20
14*: Broad Canyon----	0-9	Gravelly sandy loam.	SM, GM	A-2, A-1	0-5	60-85	60-75	40-60	20-30	20-25	NP-5
	9-15	Gravelly sandy loam, very gravelly sandy loam.	SM, GM	A-1	0-5	50-75	40-65	30-45	10-25	20-25	NP-5
	15-33	Very gravelly sandy loam, very gravelly coarse sandy loam.	GM	A-1	0-5	40-55	35-45	15-30	10-15	20-25	NP-5
	33-50	Very gravelly loamy sand, very gravelly loamy coarse sand.	GP-GM	A-1	5-10	35-50	30-45	10-25	5-10	---	NP
	50-54	Weathered bedrock	---	---	---	---	---	---	---	---	---
Coski-----	0-11	Gravelly coarse sandy loam.	SM	A-2, A-1	0-5	65-85	60-75	30-50	20-35	20-25	NP-5
	11-42	Sandy loam, coarse sandy loam, gravelly coarse sandy loam.	SM	A-2, A-4	0-5	70-95	70-90	40-60	25-45	20-25	NP-5
	42-46	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
15*: Broad Canyon----	0-9	Gravelly sandy loam.	SM, GM	A-2, A-1	0-5	60-85	60-75	40-60	20-30	20-25	NP-5
	9-15	Gravelly sandy loam, very gravelly sandy loam.	SM, GM	A-1	0-5	50-75	40-65	30-45	10-25	20-25	NP-5
	15-33	Very gravelly sandy loam, very gravelly coarse sandy loam.	GM	A-1	0-5	40-55	35-45	15-30	10-15	20-25	NP-5
	33-50	Very gravelly loamy sand, very gravelly loamy coarse sand.	GP-GM	A-1	5-10	35-50	30-45	10-25	5-10	---	NP
	50-54	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnotes at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches Pct	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In										
15*: Grousecreek-----	0-12	Gravelly sandy loam.	SM-SC, SM	A-2, A-1	0-10	70-90	60-80	40-60	20-30	15-25	NP-10
	12-32	Very gravelly sandy loam, very gravelly coarse sandy loam.	GM-GC, SM-SC, GM, SM	A-2, A-1	5-25	40-65	35-55	20-40	10-20	15-25	NP-10
	32-50	Extremely gravelly loamy sand, very gravelly coarse sandy loam.	GP-GM, GM	A-1	5-35	20-45	15-40	10-25	5-15	---	NP
	50-54	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
16*: Broad Canyon----	0-9	Gravelly sandy loam.	SM, GM	A-2, A-1	0-5	60-85	60-75	40-60	20-30	20-25	NP-5
	9-15	Gravelly sandy loam, very gravelly sandy loam.	SM, GM	A-1	0-5	50-75	40-65	30-45	10-25	20-25	NP-5
	15-33	Very gravelly sandy loam, very gravelly coarse sandy loam.	GM	A-1	0-5	40-55	35-45	15-30	10-15	20-25	NP-5
	33-50	Very gravelly loamy sand, very gravelly loamy coarse sand.	GP-GM	A-1	5-10	35-50	30-45	10-25	5-10	---	NP
	50-54	Weathered bedrock	---	---	---	---	---	---	---	---	---
Switchback-----	0-11	Sandy loam-----	SM	A-2, A-4	0-5	80-100	80-95	45-65	25-45	20-25	NP-5
	11-37	Gravelly sandy loam, gravelly loam, gravelly coarse sandy loam.	SM	A-1, A-2, A-4	5-15	60-80	55-70	35-65	20-50	20-25	NP-5
	37-41	Weathered bedrock	---	---	---	---	---	---	---	---	---
17----- Brownlee	0-19	Loam-----	CL-ML	A-4	0-5	80-100	80-95	65-85	55-75	25-30	5-10
	19-54	Loam, clay loam, sandy clay loam.	CL	A-6	0-5	80-100	80-95	60-80	50-75	30-40	10-15
	54-60	Gravelly sandy clay loam, gravelly sandy loam.	SM-SC, GM-GC	A-2, A-4	0-5	60-85	55-75	35-55	25-45	25-30	5-10
18*: Brownlee-----	0-19	Silt loam-----	CL-ML	A-4	0-5	80-100	80-95	65-85	55-75	25-30	5-10
	19-54	Loam, clay loam, sandy clay loam.	CL	A-6	0-5	80-100	80-95	60-80	50-75	30-40	10-15
	54-60	Gravelly sandy clay loam, gravelly sandy loam.	SM-SC, GM-GC	A-2, A-4	0-5	60-85	55-75	35-55	25-45	25-30	5-10

See footnotes at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	<u>In</u>				<u>Pct</u>					<u>Pct</u>	
18*: Immiant-----	0-10	Gravelly loam----	ML, GM	A-4	0-5	60-80	60-75	45-65	35-55	30-35	5-10
	10-20	Loam, clay loam, gravelly clay loam.	ML, CL	A-6, A-7	0-10	75-95	70-90	55-80	50-65	35-45	10-20
	20-28	Gravelly clay loam, cobbly loam, cobbly clay loam.	ML, CL, GM, GC	A-6, A-7	5-15	70-90	65-85	55-75	40-60	35-45	10-20
	28-32	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
19*: Brownlee-----	0-19	Loam-----	CL-ML	A-4	0-5	80-100	80-95	65-85	55-75	25-30	5-10
	19-54	Loam, clay loam, sandy clay loam.	CL	A-6	0-5	80-100	80-95	60-80	50-75	30-40	10-15
	54-60	Gravelly sandy clay loam, gravelly sandy loam.	SM-SC, GM-GC	A-2, A-4	0-5	60-85	55-75	35-55	25-45	25-30	5-10
Van Dusen-----	0-21	Loam-----	ML, CL-ML	A-4	0-5	80-100	75-100	65-100	50-90	20-30	NP-10
	21-40	Sandy clay loam, clay loam, gravelly loam.	CL, SC	A-6	0-5	75-100	60-100	50-100	35-75	25-40	10-20
	40-60	Loam, sandy loam	ML, CL-ML, SM, SM-SC	A-2, A-4	0-5	95-100	95-100	65-95	30-75	20-30	NP-10
20*: Bruncan-----	0-3	Extremely stony loam.	CL-ML, CL	A-4, A-6	40-60	95-100	90-95	80-90	50-70	20-35	5-15
	3-12	Loam, gravelly loam, gravelly clay loam.	CL	A-6	0-5	70-100	65-95	55-90	50-75	25-40	10-20
	12-15	Very gravelly loam, very cobbly loam.	GC, GM-GC	A-2, A-4, A-6	15-55	45-65	40-60	35-55	25-45	20-35	5-15
	15-27	Indurated-----	---	---	---	---	---	---	---	---	---
	27-31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Troughs-----	0-4	Extremely stony silt loam.	CL-ML, CL, GC, GM-GC	A-4, A-6	30-55	70-95	65-90	55-85	45-70	20-35	5-15
	4-15	Cobbly clay loam, very cobbly clay loam, very gravelly clay loam.	CL, SC, GC	A-6, A-2, A-7	15-55	45-85	40-80	35-75	30-60	30-45	10-20
	15-22	Indurated-----	---	---	---	---	---	---	---	---	---
21, 22----- Buko	0-7	Fine sandy loam	SM	A-4	0	100	85-95	60-85	35-50	15-25	NP-5
	7-24	Clay loam, loam, silt loam.	CL, CL-ML	A-4, A-6	0	100	95-100	85-95	60-85	25-35	5-15
	24-60	Very gravelly loamy sand, very gravelly sand, extremely cobbly sand.	GP-GM, GM, GP	A-1	5-60	40-50	25-50	15-35	0-15	---	NP

See footnotes at end of table.



TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
23----- Chardoton**	0-8	Silt loam-----	CL	A-6	0-5	90-100	90-100	85-95	75-90	25-35	10-15
	8-41	Silty clay loam, clay loam, silty clay.	CL, CH	A-7	0-5	90-100	90-100	85-100	75-95	40-60	15-35
	41-55	Fine sandy loam, loam.	SM, SM-SC, ML, CL-ML	A-4	0-10	90-100	85-100	65-90	40-60	20-30	NP-10
	55-60	Indurated-----	---	---	---	---	---	---	---	---	---
24----- Chilcote	0-7	Silt loam-----	CL-ML, ML	A-4	0	100	100	90-100	65-90	20-30	NP-10
	7-17	Silty clay loam, clay, silty clay.	CL, CH	A-7	0	100	100	90-100	75-95	45-60	25-40
	17-33	Silt loam, clay loam, loam.	CL-ML, CL	A-4, A-6	0	100	100	85-100	70-90	25-35	5-15
	33-67	Indurated-----	---	---	---	---	---	---	---	---	---
25----- Chilcote	0-7	Very stony silty clay loam.	CL	A-6, A-7	10-25	80-100	80-95	75-95	70-90	35-50	15-25
	7-17	Silty clay-----	CH, CL	A-7	0-5	90-100	90-100	85-100	80-95	45-60	20-35
	17-33	Silt loam, silty clay loam.	CL	A-6, A-7	0-5	90-100	90-100	85-95	70-90	30-45	10-20
	33-39	Indurated-----	---	---	---	---	---	---	---	---	---
26*: Chilcote	39-67	Cemented-----	---	---	---	---	---	---	---	---	---
	0-7	Very stony silty clay loam.	CL	A-6, A-7	10-25	80-100	80-95	75-95	70-90	35-50	15-25
	7-17	Silty clay-----	CH, CL	A-7	0-5	90-100	90-100	85-100	80-95	45-60	20-35
	17-33	Silt loam, silty clay loam.	CL	A-6, A-7	0-5	90-100	90-100	85-95	70-90	30-45	10-20
	33-39	Indurated-----	---	---	---	---	---	---	---	---	---
	39-67	Cemented-----	---	---	---	---	---	---	---	---	---
Day-----	0-6	Very stony silty clay.	CL, CH	A-7	10-20	90-100	90-100	85-100	80-95	40-60	20-40
	6-40	Silty clay, clay	CH	A-7	0	90-100	90-100	75-95	70-90	60-70	40-50
	40-65	Silty clay, silty clay loam.	CL	A-6, A-7	0	90-100	90-100	80-100	75-95	35-50	15-25
Rock outcrop.											
27*: Chilcote	0-7	Silt loam-----	CL-ML, ML	A-4	0	100	100	90-100	65-90	20-30	NP-10
	7-17	Silty clay loam, clay, silty clay.	CL, CH	A-7	0	100	100	90-100	75-95	45-60	25-40
	17-33	Silt loam, clay loam, loam.	CL-ML, CL	A-4, A-6	0	100	100	85-100	70-90	25-35	5-15
	33-67	Indurated-----	---	---	---	---	---	---	---	---	---
Elijah-----	0-7	Silt loam-----	CL-ML, CL	A-4, A-6	0	95-100	95-100	95-100	75-90	25-40	5-15
	7-21	Silty clay loam, silt loam.	CL	A-6, A-7	0	95-100	95-100	95-100	75-95	30-45	10-20
	21-30	Silt loam, loam	CL-ML	A-4	0	95-100	95-100	95-100	75-90	20-30	5-10
	30-41	Indurated-----	---	---	---	---	---	---	---	---	---
	41-60	Stratified fine sandy loam to sand.	SP-SM, SM	A-2, A-3	0	100	100	50-70	5-30	15-20	NP-5

See footnotes at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	<u>In</u>				<u>Pct</u>					<u>Pct</u>	
28*: Chilcott-----	0-7	Very stony silty clay loam.	CL	A-6, A-7	10-25	80-100	80-95	75-95	70-90	35-50	15-25
	7-17	Silty clay-----	CH, CL	A-7	0-5	90-100	90-100	85-100	80-95	45-60	20-35
	17-33	Silt loam, silty clay loam.	CL	A-6, A-7	0-5	90-100	90-100	85-95	70-90	30-45	10-20
	33-39	Indurated-----	---	---	---	---	---	---	---	---	---
	39-67	Cemented-----	---	---	---	---	---	---	---	---	---
Kunaton-----	0-4	Stony silt loam	CL, CL-ML	A-4, A-6	5-15	95-100	95-100	90-100	70-90	25-35	5-15
	4-10	Silty clay-----	CH	A-7	0-5	100	100	90-100	80-95	55-65	30-35
	10-15	Silt loam, silty clay loam.	CL	A-6, A-7	0-5	100	100	90-100	75-95	30-45	10-20
	15-31	Indurated-----	---	---	---	---	---	---	---	---	---
	31-35	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Chardoton**----	0-8	Silt loam-----	CL	A-6	0-5	90-100	90-100	85-95	75-90	25-35	10-15
	8-41	Silty clay loam, clay loam, silty clay.	CL, CH	A-7	0-5	90-100	90-100	85-100	75-95	40-60	15-35
	41-55	Fine sandy loam, loam.	SM, SM-SC, ML, CL-ML	A-4	0-10	90-100	85-100	65-90	40-60	20-30	NP-10
	55-60	Indurated-----	---	---	---	---	---	---	---	---	---
29*: Chilcott-----	0-7	Silt loam-----	CL-ML, ML	A-4	0	100	100	90-100	65-90	20-30	NP-10
	7-17	Silty clay loam, clay, silty clay.	CL, CH	A-7	0	100	100	90-100	75-95	45-60	25-40
	17-33	Silt loam, clay loam, loam.	CL-ML, CL	A-4, A-6	0	100	100	85-100	70-90	25-35	5-15
	33-67	Indurated-----	---	---	---	---	---	---	---	---	---
Power-----	0-6	Silt loam-----	CL-ML, ML	A-4	0	100	100	90-100	70-90	20-30	NP-10
	6-19	Clay loam-----	CL	A-6	0	100	100	95-100	75-90	25-35	10-15
	19-60	Loam, silt loam, sandy loam.	CL-ML	A-4	0	100	100	95-100	60-85	20-30	5-10
30*: Cinder land											
31----- Colthorp	0-3	Stony silt loam	CL-ML, ML	A-4	5-15	80-95	80-95	70-90	60-85	20-30	NP-10
	3-18	Silt loam, silty clay loam, gravelly silt loam.	CL	A-6	0-5	90-100	85-100	65-95	55-85	30-40	10-20
	18-23	Indurated-----	---	---	---	---	---	---	---	---	---
	23-27	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
32*: Colthorp-----	0-3	Silt loam-----	CL-ML	A-4	0-5	95-100	95-100	85-100	60-90	20-30	5-10
	3-18	Silt loam, loam, silty clay loam.	CL-ML, CL	A-6, A-4	0-5	95-100	95-100	85-100	60-90	25-35	5-15
	18-23	Indurated-----	---	---	---	---	---	---	---	---	---
	23-27	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnotes at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches Pct	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
32*: Chilcott-----	In										
	0-7	Silt loam-----	CL-ML, ML	A-4	0	100	100	90-100	65-90	20-30	NP-10
	7-17	Silty clay loam, clay, silty clay.	CL, CH	A-7	0	100	100	90-100	75-95	45-60	25-40
	17-33	Silt loam, clay loam, loam.	CL-ML, CL	A-4, A-6	0	100	100	85-100	70-90	25-35	5-15
33*: Colthorp-----	33-67	Indurated-----	---	---	---	---	---	---	---	---	---
	0-3	Stony silt loam	CL-ML, ML	A-4	5-15	80-95	80-95	70-90	60-85	20-30	NP-10
	3-18	Silt loam, silty clay loam, gravelly silt loam.	CL	A-6	0-5	90-100	85-100	65-95	55-85	30-40	10-20
	18-23	Indurated-----	---	---	---	---	---	---	---	---	---
Kunaton-----	23-27	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
	0-4	Silt loam-----	ML, CL-ML	A-4	0	100	100	90-100	70-90	20-30	NP-10
	4-10	Silty clay, clay	CH	A-7	0	100	100	90-100	75-95	50-65	30-45
	10-15	Silt loam, silty clay loam.	CL, ML	A-4, A-6, A-7	0	100	100	90-100	70-95	30-50	5-25
34*: Colthorp-----	15-31	Indurated-----	---	---	---	---	---	---	---	---	---
	31-35	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
	0-3	Stony silt loam	CL-ML, ML	A-4	5-15	80-95	80-95	70-90	60-85	20-30	NP-10
	3-18	Silt loam, silty clay loam, gravelly silt loam.	CL	A-6	0-5	90-100	85-100	65-95	55-85	30-40	10-20
Kunaton-----	18-23	Indurated-----	---	---	---	---	---	---	---	---	---
	23-27	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
	0-4	Stony silt loam	CL, CL-ML	A-4, A-6	5-15	95-100	95-100	90-100	70-90	25-35	5-15
	4-10	Silty clay-----	CH	A-7	0-5	100	100	90-100	80-95	55-65	30-35
35*: Colthorp-----	10-15	Silt loam, silty clay loam.	CL	A-6, A-7	0-5	100	100	90-100	75-95	30-45	10-20
	15-31	Indurated-----	---	---	---	---	---	---	---	---	---
	31-35	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
	18-23	Indurated-----	---	---	---	---	---	---	---	---	---
Rubble land.											
35*: Colthorp-----	23-27	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
	0-3	Stony silt loam	CL-ML, ML	A-4	5-15	80-95	80-95	70-90	60-85	20-30	NP-10
	3-18	Silt loam, silty clay loam, gravelly silt loam.	CL	A-6	0-5	90-100	85-100	65-95	55-85	30-40	10-20
	18-23	Indurated-----	---	---	---	---	---	---	---	---	---

See footnotes at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches Pct	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
35*: Minveno-----	In										
	0-8	Stony silt loam	ML	A-4	5-10	90-100	85-100	80-100	80-90	15-25	NP-5
	8-14	Loam, silt loam	ML	A-4	0	90-100	85-100	80-100	80-90	15-25	NP-5
	14-21	Indurated-----	---	---	---	---	---	---	---	---	---
	21-25	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
36*: Colthorp-----											
	0-3	Very stony silt loam.	CL-ML, ML	A-4	15-35	80-95	75-90	70-85	60-80	20-30	NP-10
	3-18	Silt loam, silty clay loam, gravelly silt loam.	CL	A-6	0-5	90-100	85-100	65-95	55-85	30-40	10-20
	18-23	Indurated-----	---	---	---	---	---	---	---	---	---
	23-27	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
37*: Coski-----											
	0-4	Sandy loam-----	SM	A-2	0-5	80-100	80-95	50-70	25-35	20-25	NP-5
	4-44	Sandy loam, coarse sandy loam, gravelly coarse sandy loam.	SM	A-2, A-4	0-5	70-95	70-90	40-60	25-45	20-25	NP-5
	44-48	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Broad Canyon----											
	0-9	Gravelly sandy loam.	SM, GM	A-2, A-1	0-5	60-85	60-75	40-60	20-30	20-25	NP-5
	9-15	Gravelly sandy loam, very gravelly sandy loam.	SM, GM	A-1	0-5	50-75	40-65	30-45	10-25	20-25	NP-5
	15-33	Very gravelly sandy loam, very gravelly coarse sandy loam.	GM	A-1	0-5	40-55	35-45	15-30	10-15	20-25	NP-5
	33-50	Very gravelly loamy sand, very gravelly loamy coarse sand.	GP-GM	A-1	5-10	35-50	30-45	10-25	5-10	---	NP
	50-54	Weathered bedrock	---	---	---	---	---	---	---	---	---
38*: Cottle-----											
	0-5	Very stony loam	GC, GM-GC	A-4, A-6, A-2	20-35	55-75	50-70	40-60	30-50	25-35	5-15
	5-14	Very stony clay loam, very cobbly clay loam, extremely gravelly clay loam.	GC	A-2	15-35	40-60	35-55	30-45	20-35	35-45	15-20
	14-18	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnotes at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	<u>In</u>				<u>Pct</u>					<u>Pct</u>	
38*: Sidlake-----	0-4	Loam-----	CL-ML	A-4	0	85-100	80-95	60-80	50-65	25-30	5-10
	4-16	Loam, clay loam, sandy clay loam.	CL, SC	A-6	0-5	85-100	80-95	50-75	40-65	30-35	10-15
	16-23	Gravelly loam, very gravelly sandy clay loam.	SM-SC, GM-GC	A-2, A-4	5-10	50-70	45-65	30-55	20-45	25-30	5-10
	23-26	Weathered bedrock	---	---	---	---	---	---	---	---	---
	26-30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
39*: Cottle-----	0-4	Gravelly loam----	GM-GC	A-4	0-10	60-80	55-70	40-60	35-50	25-30	5-10
	4-11	Very gravelly loam, gravelly clay loam, very gravelly clay loam.	GC	A-2	5-15	40-60	35-60	30-50	20-35	30-40	10-15
	11-14	Very gravelly loam, extremely gravelly clay loam, extremely cobbly clay loam.	GC	A-2	10-45	25-50	20-40	15-30	10-25	30-45	10-20
	14-18	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Trevino-----	0-5	Stony loam-----	CL-ML	A-4	5-15	95-100	90-100	75-95	55-75	20-30	5-10
	5-12	Loam, stony loam, silt loam.	CL-ML	A-4	0-25	85-100	85-100	75-100	55-80	20-30	5-10
	12-18	Fine sandy loam, loam, cobbly loam.	SM, ML, CL-ML, SM-SC	A-4	0-25	75-100	70-90	55-75	40-55	20-30	NP-10
	18-22	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
40*: Cottle-----	0-5	Stony loam-----	GC, GM-GC, SC, SM-SC	A-4, A-6	10-20	70-90	65-85	55-75	35-50	25-35	5-15
	5-14	Very stony clay loam, very cobbly clay loam, extremely gravelly clay loam.	GC	A-2	15-35	40-60	35-55	30-45	20-35	35-45	15-20
	14-18	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnotes at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches Pct	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
40*: Willhill-----	In										
	0-3	Very stony loam	CL-ML, ML	A-4	10-25	75-85	70-80	60-70	50-60	20-30	NP-10
	3-8	Very gravelly clay loam, gravelly clay loam, very cobbly clay loam.	CL-ML, CL, GC, GM-GC	A-4, A-6	15-50	65-85	60-80	55-80	40-65	25-40	5-20
	8-24	Extremely gravelly loam, extremely cobbly loam.	GC, GM-GC	A-2	30-50	25-45	20-40	20-35	15-30	20-30	5-15
	24-28	Weathered bedrock	---	---	---	---	---	---	---	---	---
41----- Cowgil	0-4	Extremely stony sandy loam.	GM	A-1	45-60	40-55	35-50	25-40	10-20	20-30	NP-5
	4-21	Very gravelly sandy clay loam.	GC	A-2	10-25	50-65	40-55	35-50	20-30	30-40	10-20
	21-60	Very cobbly loamy sand, very gravelly loamy sand, extremely gravelly sand.	GM, GP-GM, GP	A-1	10-35	35-55	25-50	15-30	0-15	---	NP
42----- Cowgil	0-4	Extremely stony fine sandy loam.	GM	A-1	45-60	40-55	35-50	25-40	10-20	20-30	NP-5
	4-21	Very gravelly sandy clay loam.	GC	A-2	10-25	50-65	40-55	35-50	20-30	30-40	10-20
	21-60	Very cobbly loamy sand, very gravelly loamy sand, extremely gravelly sand.	GM, GP-GM, GP	A-1	10-35	35-55	25-50	15-30	0-15	---	NP
43*: Cowgil-----	0-4	Extremely stony sandy loam.	GM	A-1	45-60	40-55	35-50	25-40	10-20	20-30	NP-5
	4-21	Very gravelly sandy clay loam.	GC	A-2	10-25	50-65	40-55	35-50	20-30	30-40	10-20
	21-60	Very cobbly loamy sand, very gravelly loamy sand, extremely gravelly sand.	GM, GP-GM, GP	A-1	10-35	35-55	25-50	15-30	0-15	---	NP
Rubble land.											
Rock outcrop.											
44----- Davey	0-15	Loamy sand-----	SM	A-2	0	95-100	95-100	65-70	20-30	---	NP
	15-22	Fine sandy loam, sandy loam.	SM	A-2	0	90-100	85-100	60-75	20-35	20-25	NP-5
	22-60	Loamy fine sand, loamy sand, gravelly sand.	SM, SP-SM	A-2, A-3	0	80-100	70-100	60-90	5-30	---	NP

See footnotes at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches Pct	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In										
45----- Davey	0-15	Loamy fine sand	SM	A-2	0	95-100	95-100	75-90	25-35	---	NP
	15-22	Fine sandy loam, sandy loam.	SM	A-2	0	90-100	85-100	60-75	20-35	20-25	NP-5
	22-60	Loamy fine sand, loamy sand, gravelly sand.	SM, SP-SM	A-2, A-3	0	80-100	70-100	60-90	5-30	---	NP
46*: Davey-----	0-15	Loamy fine sand	SM	A-2	0	95-100	95-100	75-90	25-35	---	NP
	15-22	Fine sandy loam, sandy loam.	SM	A-2	0	90-100	85-100	60-75	20-35	20-25	NP-5
	22-60	Loamy fine sand, loamy sand, gravelly sand.	SM, SP-SM	A-2, A-3	0	80-100	70-100	60-90	5-30	---	NP
Buko-----	0-7	Fine sandy loam	SM	A-4	0	100	85-95	60-85	35-50	15-25	NP-5
	7-24	Clay loam, loam, silt loam.	CL, CL-ML	A-4, A-6	0	100	95-100	85-95	60-85	25-35	5-15
	24-60	Very gravelly loamy sand, very gravelly sand, extremely cobbly sand.	GP-GM, GM, GP	A-1	5-60	40-50	25-50	15-35	0-15	---	NP
47*: Davey-----	0-15	Loamy fine sand	SM	A-2	0	95-100	95-100	75-90	25-35	---	NP
	15-22	Fine sandy loam, sandy loam.	SM	A-2	0	90-100	85-100	60-75	20-35	20-25	NP-5
	22-60	Loamy fine sand, loamy sand, gravelly sand.	SM, SP-SM	A-2, A-3	0	80-100	70-100	60-90	5-30	---	NP
Mazuma-----	0-16	Fine sandy loam	SM	A-2, A-4	0	90-100	85-100	60-85	30-50	20-25	NP-5
	16-40	Fine sandy loam, sandy loam.	SM	A-2, A-4	0	90-100	85-100	50-80	25-45	20-25	NP-5
	40-60	Loam, fine sandy loam, sandy loam.	SM	A-2, A-4	0	85-100	80-95	50-75	25-50	20-25	NP-5
48*: Davey-----	0-15	Loamy fine sand	SM	A-2	0	95-100	95-100	75-90	25-35	---	NP
	15-22	Fine sandy loam, sandy loam.	SM	A-2	0	90-100	85-100	60-75	20-35	20-25	NP-5
	22-60	Loamy fine sand, loamy sand, gravelly sand.	SM, SP-SM	A-2, A-3	0	80-100	70-100	60-90	5-30	---	NP
Quincy-----	0-3	Fine sand-----	SM, SP-SM	A-2, A-3	0	100	100	65-90	5-20	---	NP
	3-60	Loamy fine sand, fine sand, sand.	SM	A-2	0	100	100	65-80	10-30	---	NP
49*: Davey-----	0-15	Loamy fine sand	SM	A-2	0	95-100	95-100	75-90	25-35	---	NP
	15-22	Fine sandy loam, sandy loam.	SM	A-2	0	90-100	85-100	60-75	20-35	20-25	NP-5
	22-60	Loamy fine sand, loamy sand, gravelly sand.	SM, SP-SM	A-2, A-3	0	80-100	70-100	60-90	5-30	---	NP

See footnotes at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches Pct	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	<u>In</u>										
49*: Vanderhoff-----	0-3	Fine sandy loam	SM	A-2, A-4	0-5	80-100	75-100	65-85	25-40	20-30	NP-5
	3-32	Gravelly loam, silt loam, very fine sandy loam.	SM, SM-SC, ML, CL-ML	A-2, A-4	0-5	80-100	60-100	50-90	30-70	20-30	NP-10
	32-36	Weathered bedrock	---	---	---	---	---	---	---	---	---
50----- Dors	0-5	Fine sandy loam	SM-SC	A-2, A-4	0	100	100	75-95	30-40	20-25	5-10
	5-26	Very fine sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-4	0	90-100	90-100	70-95	35-60	20-25	5-10
	26-60	Very gravelly loamy sand, very gravelly loamy coarse sand, very gravelly sand.	SP, SP-SM, GP, GP-GM	A-1	0-25	40-60	25-50	20-40	0-10	---	NP
51----- Dors	0-5	Gravelly fine sandy loam.	SM-SC	A-2	0	65-75	60-75	55-75	20-30	20-25	5-10
	5-26	Very fine sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-4	0	90-100	90-100	70-95	35-60	20-25	5-10
	26-60	Very gravelly loamy sand, very gravelly loamy coarse sand, very gravelly sand.	SP, SP-SM, GP, GP-GM	A-1	0-25	40-60	25-50	20-40	0-10	---	NP
52*: Dors-----	0-5	Fine sandy loam	SM-SC	A-2, A-4	0	100	100	75-95	30-40	20-25	5-10
	5-26	Very fine sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-4	0	90-100	90-100	70-95	35-60	20-25	5-10
	26-60	Very gravelly loamy sand, very gravelly loamy coarse sand, very gravelly sand.	SP, SP-SM, GP, GP-GM	A-1	0-25	40-60	25-50	20-40	0-10	---	NP
Loray-----	0-13	Gravelly fine sandy loam.	GM, SM	A-1, A-2	0-5	60-80	55-75	45-60	20-30	20-25	NP-5
	13-60	Stratified extremely gravelly loamy fine sand to extremely gravelly coarse sand.	GP, GP-GM	A-1	0-15	20-35	10-25	5-20	0-10	---	NP
53*. Dune land											

See footnotes at end of table.



TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
54, 55- Elijah	0-7	Silt loam-----	CL-ML, CL	A-4, A-6	0	95-100	95-100	95-100	75-90	25-40	5-15
	7-21	Silty clay loam, silt loam.	CL	A-6, A-7	0	95-100	95-100	95-100	75-95	30-45	10-20
	21-30	Silt loam, loam	CL-ML	A-4	0	95-100	95-100	95-100	75-90	20-30	5-10
	30-41	Indurated-----	---	---	---	---	---	---	---	---	---
	41-60	Stratified fine sandy loam to sand.	SP-SM, SM	A-2, A-3	0	100	100	50-70	5-30	15-20	NP-5
56*: Elijah	0-7	Silt loam-----	CL-ML, CL	A-4, A-6	0	95-100	95-100	95-100	75-90	25-40	5-15
	7-21	Silty clay loam, silt loam.	CL	A-6, A-7	0	95-100	95-100	95-100	75-95	30-45	10-20
	21-30	Silt loam, loam	CL-ML	A-4	0	95-100	95-100	95-100	75-90	20-30	5-10
	30-41	Indurated-----	---	---	---	---	---	---	---	---	---
	41-60	Stratified fine sandy loam to sand.	SP-SM, SM	A-2, A-3	0	100	100	50-70	5-30	15-20	NP-5
Purdam	0-6	Silt loam-----	CL-ML, ML	A-4	0	100	100	90-100	70-90	25-35	5-10
	6-15	Silty clay loam, silt loam.	CL	A-6	0	100	100	90-100	70-95	30-40	10-20
	15-21	Silt loam, loam	CL-ML, ML	A-4	0	100	100	85-100	60-90	25-35	5-10
	21-40	Cemented-----	---	---	---	---	---	---	---	---	---
	40-60	Stratified loam to very gravelly sand.	SM	A-1	0-10	70-85	40-80	25-45	10-20	20-30	NP-5
57*: Elkcreek	0-4	Stony loam-----	CL-ML, CL	A-4, A-6	10-20	90-100	85-100	70-95	60-75	25-35	5-15
	4-10	Stony clay loam	CL, SC	A-6, A-7	10-20	80-100	75-95	50-75	40-65	35-45	15-25
	10-22	Stony loam-----	CL	A-6	15-25	90-100	85-100	70-95	60-75	30-35	10-15
	22-26	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Demast	0-15	Loam-----	CL-ML	A-4	0-5	95-100	90-100	75-95	55-75	25-30	5-10
	15-22	Gravelly loam----	CL-ML, SM-SC	A-4	5-15	80-90	70-85	60-80	45-65	25-30	5-10
	22-41	Gravelly clay loam, gravelly loam, cobbly loam.	CL	A-6	15-35	75-85	70-80	65-80	50-60	30-35	10-15
	41-45	Weathered bedrock	---	---	---	---	---	---	---	---	---
58*: Elkcreek	0-4	Stony loam-----	CL-ML, CL	A-4, A-6	10-20	90-100	85-100	70-95	60-75	25-35	5-15
	4-10	Stony clay loam	CL, SC	A-6, A-7	10-20	80-100	75-95	50-75	40-65	35-45	15-25
	10-22	Stony loam-----	CL	A-6	15-25	90-100	85-100	70-95	60-75	30-35	10-15
	22-26	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Gaib	0-4	Stony fine sandy loam.	SM	A-1, A-2	10-20	70-85	60-70	45-55	20-30	20-30	NP-5
	4-12	Very gravelly loam.	GM, SM, GM-GC, SM-SC	A-2	0-5	60-75	35-45	30-40	20-30	25-35	5-10
	12-16	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnotes at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches Pct	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
58*: Simonton-----	In										
	0-4	Loam-----	CL-ML, SM-SC	A-4	0	85-100	75-100	60-95	45-75	20-30	5-10
	4-42	Loam, clay loam, sandy clay loam.	CL, SC	A-6, A-7	0	85-100	75-100	60-95	45-75	30-45	10-20
	42-60	Loamy coarse sand, sandy loam.	SM	A-2, A-1	0	85-100	75-100	40-65	15-30	---	NP
59*: Farrot-----	0-10	Coarse sandy loam	SM	A-2, A-4	0	90-100	85-100	50-70	30-45	15-20	NP-5
	10-24	Gravelly sandy clay loam, sandy clay loam.	SC	A-6	0	80-95	65-90	35-55	35-45	30-40	10-20
	24-30	Very gravelly coarse sandy loam, very gravelly loamy coarse sand.	GM, GP-GM	A-1	0-5	35-55	30-45	15-25	5-15	15-20	NP-5
	30-34	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Haw-----	0-9	Loam-----	ML, CL-ML	A-4	0	100	95-100	85-100	60-90	20-30	NP-10
	9-25	Clay loam, sandy clay loam, loam.	CL, SC	A-6	0	100	95-100	70-100	35-80	30-40	10-20
	25-37	Coarse sandy loam, loam, sandy loam.	SM, ML, SC, CL	A-2, A-4, A-6	0	100	95-100	60-95	30-75	20-35	NP-15
	37-60	Coarse sand, loamy coarse sand, loamy sand.	SP-SM, SM	A-2, A-3	0	100	95-100	50-75	5-30	---	NP
60----- Fluvaquents	0-5	Clay loam-----	CL	A-6, A-7	0	100	100	75-90	60-75	35-45	15-20
	5-60	Stratified loamy sand to silt loam.	ML, CL-ML, CL	A-4, A-6	0	100	100	60-100	50-90	20-40	NP-15
61*: Gaib-----	0-4	Very stony fine sandy loam.	SM	A-1, A-2	20-35	65-75	50-70	40-55	15-25	20-30	NP-5
	4-12	Very gravelly loam.	GM, SM, GM-GC, SM-SC	A-2	0-5	60-75	35-45	30-40	20-30	25-35	5-10
	12-16	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rubble land.											
62*: Gaib-----	0-4	Stony fine sandy loam.	SM	A-1, A-2	10-20	70-85	60-70	45-55	20-30	20-30	NP-5
	4-12	Very gravelly loam.	GM, SM, GM-GC, SM-SC	A-2	0-5	60-75	35-45	30-40	20-30	25-35	5-10
	12-16	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnotes at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches Pct	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
62*: Elkcreek-----	0-4	Stony loam-----	CL-ML, CL	A-4, A-6	10-20	90-100	85-100	70-95	60-75	25-35	5-15
	4-10	Stony clay loam	CL, SC	A-6, A-7	10-20	80-100	75-95	50-75	40-65	35-45	15-25
	10-22	Stony loam-----	CL	A-6	15-25	90-100	85-100	70-95	60-75	30-35	10-15
	22-26	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
63*: Gaib-----	0-4	Stony fine sandy loam.	SM	A-1, A-2	10-20	70-85	60-70	45-55	20-30	20-30	NP-5
	4-12	Very gravelly loam.	GM, SM, GM-GC, SM-SC	A-2	0-5	60-75	35-45	30-40	20-30	25-35	5-10
	12-16	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Elkcreek-----	0-4	Stony loam-----	CL-ML, CL	A-4, A-6	10-20	90-100	85-100	70-95	60-75	25-35	5-15
	4-10	Stony clay loam	CL, SC	A-6, A-7	10-20	80-100	75-95	50-75	40-65	35-45	15-25
	10-22	Stony loam-----	CL	A-6	15-25	90-100	85-100	70-95	60-75	30-35	10-15
	22-26	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Simonton-----	0-4	Loam-----	CL-ML, SM-SC	A-4	0	85-100	75-100	60-95	45-75	20-30	5-10
	4-42	Loam, clay loam, sandy clay loam.	CL, SC	A-6, A-7	0	85-100	75-100	60-95	45-75	30-45	10-20
	42-60	Loamy coarse sand, sandy loam.	SM	A-2, A-1	0	85-100	75-100	40-65	15-30	---	NP
64*: Gaib-----	0-4	Stony loam-----	SM	A-2, A-4	10-20	70-85	60-70	50-60	30-45	25-30	NP-5
	4-12	Very gravelly loam.	GM, SM, GM-GC, SM-SC	A-2	0-5	60-75	35-45	30-40	20-30	25-35	5-10
	12-16	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Simonton-----	0-4	Stony loam-----	CL-ML, SM-SC	A-4	10-20	85-100	75-100	60-95	45-75	20-30	5-10
	4-42	Loam, clay loam, sandy clay loam.	CL, SC	A-6, A-7	0	85-100	75-100	60-95	45-75	30-45	10-20
	42-60	Loamy coarse sand, sandy loam.	SM	A-2, A-1	0	85-100	75-100	40-65	15-30	---	NP
Rock outcrop.											
65, 66----- Garbutt	0-5	Silt loam-----	CL-ML	A-4	0	95-100	95-100	90-100	80-90	20-30	5-10
	5-60	Silt loam, very fine sandy loam.	ML, CL-ML	A-4	0	95-100	95-100	95-100	75-90	20-30	NP-10
67*: Garbutt-----	0-5	Silt loam-----	CL-ML	A-4	0	95-100	95-100	90-100	80-90	20-30	5-10
	5-60	Silt loam, very fine sandy loam.	ML, CL-ML	A-4	0	95-100	95-100	95-100	75-90	20-30	NP-10

See footnotes at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
67*: Weso-----	0-5	Loam-----	ML	A-4	0	95-100	90-100	80-95	60-75	15-25	NP-5
	5-30	Fine sandy loam, very fine sandy loam, loam.	ML, CL-ML, SM, SM-SC	A-4	0	95-100	85-95	70-85	45-60	15-30	NP-10
	30-60	Stratified very gravelly loamy sand to fine sandy loam.	SM	A-1, A-2	0	80-90	70-80	45-55	20-30	---	NP
68*: Garbutt-----	0-5	Silt loam-----	CL-ML	A-4	0	95-100	95-100	90-100	80-90	20-30	5-10
	5-60	Silt loam, very fine sandy loam.	ML, CL-ML	A-4	0	95-100	95-100	95-100	75-90	20-30	NP-10
Weso-----	0-5	Loam-----	ML	A-4	0	95-100	90-100	80-95	60-75	15-25	NP-5
	5-30	Fine sandy loam, very fine sandy loam, loam.	ML, CL-ML, SM, SM-SC	A-4	0	95-100	85-95	70-85	45-60	15-30	NP-10
	30-60	Stratified very gravelly loamy sand to fine sandy loam.	SM	A-1, A-2	0	80-90	70-80	45-55	20-30	---	NP
Trevino-----	0-5	Stony silt loam	CL-ML	A-4	5-15	95-100	90-100	75-95	55-75	20-30	5-10
	5-12	Loam, stony loam, silt loam.	CL-ML	A-4	0-25	85-100	85-100	75-100	55-80	20-30	5-10
	12-18	Fine sandy loam, loam, cobbly loam.	SM, ML, CL-ML, SM-SC	A-4	0-25	75-100	70-90	55-75	40-55	20-30	NP-10
	18-22	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
69*: Garbutt-----	0-5	Silt loam-----	CL-ML	A-4	0	95-100	95-100	90-100	80-90	20-30	5-10
	5-60	Silt loam, very fine sandy loam.	ML, CL-ML	A-4	0	95-100	95-100	95-100	75-90	20-30	NP-10
Trevino-----	0-5	Stony silt loam	CL-ML	A-4	5-15	95-100	90-100	75-95	55-75	20-30	5-10
	5-12	Loam, stony loam, silt loam.	CL-ML	A-4	0-25	85-100	85-100	75-100	55-80	20-30	5-10
	12-18	Fine sandy loam, loam, cobbly loam.	SM, ML, CL-ML, SM-SC	A-4	0-25	75-100	70-90	55-75	40-55	20-30	NP-10
	18-22	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
70----- Grandview	0-13	Loam-----	ML, CL-ML	A-4	0	95-100	90-100	85-95	60-70	25-35	5-10
	13-35	Silty clay loam, clay loam.	CL, CL-ML	A-6, A-4	0	95-100	90-100	80-100	70-85	25-40	5-15
	35-60	Loam-----	ML, CL-ML	A-4	0	95-100	90-100	75-100	60-75	25-35	5-10
71*: Grandview-----	0-11	Silt loam-----	ML, CL-ML	A-4	0	95-100	95-100	85-100	75-95	25-35	5-10
	11-60	Loam, silt loam, silty clay loam.	CL	A-6	0	95-100	90-100	70-90	65-85	30-40	10-15
Garbutt-----	0-5	Silt loam-----	CL-ML	A-4	0	95-100	95-100	90-100	80-90	20-30	5-10
	5-60	Silt loam, very fine sandy loam.	ML, CL-ML	A-4	0	95-100	95-100	95-100	75-90	20-30	NP-10

See footnotes at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
72*: Graylock-----	0-7	Gravelly coarse sandy loam.	SM	A-1, A-2	0-10	75-90	50-75	20-40	10-30	---	NP
	7-26	Very gravelly loamy coarse sand, very gravelly loamy sand.	SM	A-1	0-15	65-85	40-55	15-40	10-15	---	NP
	26-58	Gravelly coarse sand, very gravelly coarse sand, extremely gravelly loamy sand.	GM, SM, SP-SM, GP-GM	A-1	5-15	40-80	20-65	10-40	5-20	---	NP
	58-62	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Broad Canyon----	0-9	Gravelly sandy loam.	SM, GM	A-2, A-1	0-5	60-85	60-75	40-60	20-30	20-25	NP-5
	9-15	Gravelly sandy loam, very gravelly sandy loam.	SM, GM	A-1	0-5	50-75	40-65	30-45	10-25	20-25	NP-5
	15-33	Very gravelly sandy loam, very gravelly coarse sandy loam.	GM	A-1	0-5	40-55	35-45	15-30	10-15	20-25	NP-5
	33-50	Very gravelly loamy sand, very gravelly loamy coarse sand.	GP-GM	A-1	5-10	35-50	30-45	10-25	5-10	---	NP
	50-54	Weathered bedrock	---	---	---	---	---	---	---	---	---
73----- Greenleaf	0-5	Very fine sandy loam.	CL-ML, ML	A-4	0	100	100	90-100	50-75	20-30	NP-10
	5-60	Silty clay loam, silt loam, loam.	CL	A-6	0	100	100	95-100	85-95	30-40	10-20
74*: Greenleaf-----	0-5	Loam-----	CL-ML, ML	A-4	0	100	100	85-100	75-95	20-30	NP-10
	5-60	Silty clay loam, silt loam, loam.	CL	A-6	0	100	100	95-100	85-95	30-40	10-20
Shano-----	0-5	Silt loam-----	ML	A-4	0	100	100	95-100	75-90	25-40	NP-10
	5-42	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	75-90	20-30	NP-5
	42-60	Fine sandy loam, loamy fine sand.	SM	A-2, A-4	0	100	95-100	70-95	20-50	---	NP
75*: Haplaquolls----	0-12	Silt loam-----	CL-ML	A-4	0-5	90-100	85-100	80-95	55-85	25-30	5-10
	12-60	Variable-----	---	---	---	---	---	---	---	---	---
Xerofluvents**--	0-6	Fine sandy loam	SM	A-2, A-4	0-5	80-100	80-100	65-85	25-45	15-20	NP-5
	6-60	Variable-----	---	---	---	---	---	---	---	---	---

See footnotes at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches Pct	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
76*: Harahill-----	In										
	0-4	Stony loam-----	GM-GC, CL-ML	A-4	5-10	60-85	50-80	50-75	40-60	20-30	5-10
	4-16	Loam, silt loam, clay loam.	CL, SC	A-6	0	80-100	75-95	60-90	40-75	30-35	10-15
	16-28	Very gravelly loam, cobbly loam, stony loam.	GM-GC, CL-ML, SM-SC	A-2, A-4	20-50	45-95	35-95	30-70	25-60	20-30	5-10
Willho-----	28-32	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
	0-6	Silt loam-----	CL, CL-ML	A-4, A-6	0	95-100	90-100	80-95	65-85	25-35	5-15
	6-13	Loam, clay loam, silty clay loam.	CL	A-6	0-5	90-100	85-95	75-90	65-85	30-40	10-15
	13-27	Silty clay loam, clay loam, clay.	CL, CH	A-7	0-5	90-100	85-95	80-90	65-90	40-60	20-40
	27-47	Indurated-----	---	---	---	---	---	---	---	---	---
77*: Haw-----	47-74	Silt loam, silty clay loam.	CL, CL-ML	A-4, A-6	0-5	90-100	85-95	80-90	65-85	25-35	5-15
	0-9	Loam-----	ML, CL-ML	A-4	0	100	95-100	85-100	60-90	20-30	NP-10
	9-25	Clay loam, sandy clay loam, loam.	CL, SC	A-6	0	100	95-100	70-100	35-80	30-40	10-20
	25-37	Coarse sandy loam, loam, sandy loam.	SM, ML, SC, CL	A-2, A-4, A-6	0	100	95-100	60-95	30-75	20-35	NP-15
Farrot-----	37-60	Coarse sand, loamy coarse sand, loamy sand.	SP-SM, SM	A-2, A-3	0	100	95-100	50-75	5-30	---	NP
	0-10	Coarse sandy loam	SM	A-2, A-4	0	90-100	85-100	50-70	30-45	15-20	NP-5
	10-24	Gravelly sandy clay loam, sandy clay loam.	SC	A-6	0	80-95	65-90	35-55	35-45	30-40	10-20
	24-30	Very gravelly coarse sandy loam, very gravelly loamy coarse sand.	GM, GP-GM	A-1	0-5	35-55	30-45	15-25	5-15	15-20	NP-5
	30-34	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
78*: Haw-----	0-9	Loam-----	ML, CL-ML	A-4	0	100	95-100	85-100	60-90	20-30	NP-10
	9-25	Clay loam, sandy clay loam, loam.	CL, SC	A-6	0	100	95-100	70-100	35-80	30-40	10-20
	25-37	Coarse sandy loam, loam, sandy loam.	SM, ML, SC, CL	A-2, A-4, A-6	0	100	95-100	60-95	30-75	20-35	NP-15
	37-60	Coarse sand, loamy coarse sand, loamy sand.	SP-SM, SM	A-2, A-3	0	100	95-100	50-75	5-30	---	NP

See footnotes at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	<u>In</u>				<u>Pct</u>					<u>Pct</u>	
78*: Lankbush-----	0-8	Sandy loam-----	SM, SM-SC	A-2, A-4	0	85-100	85-100	45-65	25-40	20-30	NP-10
	8-12	Sandy loam, coarse sandy loam.	SM, SM-SC	A-2, A-4	0	85-100	85-100	45-65	25-40	20-30	NP-10
	12-50	Sandy clay loam, clay loam, loam.	CL-ML, CL, SM-SC, SC	A-2, A-4, A-6	0	85-100	85-100	70-100	30-80	25-35	5-15
	50-60	Sand, sandy loam, loamy coarse sand.	SM, SP-SM	A-1, A-2, A-3	0	85-100	85-100	45-70	5-30	---	NP
79----- Hawsley	0-6	Loamy sand-----	SM	A-2, A-1	0	85-100	85-100	40-60	15-25	---	NP
	6-60	Loamy sand, sand	SM, SP-SM	A-2, A-3, A-1	0	85-100	85-100	35-60	5-20	---	NP
80*: Hotcreek-----	0-2	Very stony loam	GM-GC, GM, SM, SM-SC	A-1, A-2	15-45	40-65	35-60	25-40	20-35	20-30	NP-10
	2-8	Very gravelly clay loam, very cobbly clay loam, very gravelly loam.	GC, CL	A-2, A-6	5-50	35-75	30-70	25-70	20-55	30-40	10-20
	8-14	Indurated-----	---	---	---	---	---	---	---	---	---
	14-18	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Troughs-----	0-4	Stony loam-----	CL-ML	A-4	5-15	75-95	75-90	60-75	50-60	25-30	5-10
	4-11	Cobbly loam-----	CL-ML	A-4	10-20	80-95	75-95	60-80	50-65	25-30	5-10
	11-16	Very gravelly clay loam, very cobbly clay loam.	GC	A-2, A-7, A-6	10-30	45-65	40-60	35-50	30-45	35-45	15-25
	16-21	Indurated-----	---	---	---	---	---	---	---	---	---
	21-36	Extremely gravelly loam, extremely gravelly sandy loam.	GM-GC, GP-GC	A-2	15-25	15-35	15-30	10-25	5-20	25-30	5-10
	36-40	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
81----- Houk	0-14	Silty clay loam	CL	A-6, A-7	0	95-100	95-100	90-100	85-95	30-45	10-20
	14-35	Clay, clay loam, silty clay.	CL, CH	A-6, A-7	0	95-100	95-100	90-100	70-95	35-65	15-45
	35-60	Silty clay loam	CL	A-6, A-7	0	95-100	95-100	90-100	85-95	30-45	10-20
82----- Immiant	0-10	Gravelly loam----	ML, GM	A-4	0-5	60-80	60-75	45-65	35-55	30-35	5-10
	10-20	Loam, clay loam, gravelly clay loam.	ML, CL	A-6, A-7	0-10	75-95	70-90	55-80	50-65	35-45	10-20
	20-28	Gravelly clay loam, cobbly loam, cobbly clay loam.	ML, CL, GM, GC	A-6, A-7	5-15	70-90	65-85	55-75	40-60	35-45	10-20
	28-32	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnotes at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches Pct	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
83*: Immiant-----	In										
	0-10	Gravelly loam----	ML, GM	A-4	0-5	60-80	60-75	45-65	35-55	30-35	5-10
	10-20	Loam, clay loam, gravelly clay loam.	ML, CL	A-6, A-7	0-10	75-95	70-90	55-80	50-65	35-45	10-20
	20-28	Gravelly clay loam, cobbly loam, cobbly clay loam.	ML, CL, GM, GC	A-6, A-7	5-15	70-90	65-85	55-75	40-60	35-45	10-20
	28-32	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Ruckles**-----	0-6	Very gravelly clay loam.	GC	A-6, A-2	5-15	40-60	35-55	30-45	25-40	35-45	15-25
	6-11	Very gravelly clay, extremely gravelly clay.	GC	A-7, A-2	10-25	30-55	25-45	20-40	20-40	45-60	25-40
	11-15	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
84----- Jacquith	0-10	Loamy sand-----	SM	A-2, A-4	0	95-100	90-100	70-85	25-40	---	NP
	10-30	Loamy fine sand, loamy sand, loamy coarse sand.	SM	A-2	0	95-100	90-100	50-85	20-35	---	NP
	30-60	Cemented-----	---	---	---	---	---	---	---	---	---
85----- Jacquith	0-4	Loamy fine sand	SM	A-2, A-4	0	95-100	90-100	70-85	25-40	---	NP
	4-30	Loamy fine sand, loamy sand, loamy coarse sand.	SM	A-2	0	95-100	90-100	50-85	20-35	---	NP
	30-60	Cemented-----	---	---	---	---	---	---	---	---	---
86*: Jacquith-----	0-10	Loamy sand-----	SM	A-2, A-4	0	95-100	90-100	70-85	25-40	---	NP
	10-30	Loamy fine sand, loamy sand, loamy coarse sand.	SM	A-2	0	95-100	90-100	50-85	20-35	---	NP
	30-60	Cemented-----	---	---	---	---	---	---	---	---	---
Quincy-----	0-3	Loamy sand-----	SM	A-2	0	100	100	65-100	15-30	---	NP
	3-60	Loamy fine sand, fine sand, sand.	SM	A-2	0	100	100	65-80	10-30	---	NP
87*: Karcas-----	0-4	Extremely stony silty clay.	CH	A-7	30-50	65-75	60-70	55-65	50-60	50-70	25-40
	4-31	Clay, silty clay	CH	A-7	0-20	85-95	80-95	75-90	70-85	50-70	25-40
	31-35	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Day-----	0-6	Very stony silty clay.	CL, CH	A-7	10-20	90-100	90-100	85-100	80-95	40-60	20-40
	6-40	Silty clay, clay	CH	A-7	0	90-100	90-100	75-95	70-90	60-70	40-50
	40-60	Silty clay, silty clay loam.	CL	A-6, A-7	0	90-100	90-100	80-100	75-95	35-50	15-25

See footnotes at end of table.



TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches Pct	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
87*: Rock outcrop.	In										
88----- Kunaton	0-4	Silt loam-----	ML, CL-ML	A-4	0	100	100	90-100	70-90	20-30	NP-10
	4-10	Silty clay, clay	CH	A-7	0	100	100	90-100	75-95	50-65	30-45
	10-15	Silt loam, silty clay loam.	CL, ML	A-4, A-6, A-7	0	100	100	90-100	70-95	30-50	5-25
	15-31	Indurated-----	---	---	---	---	---	---	---	---	---
	31-35	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
89*: Kunaton-----	0-4	Silt loam-----	ML, CL-ML	A-4	0	100	100	90-100	70-90	20-30	NP-10
	4-10	Silty clay, clay	CH	A-7	0	100	100	90-100	75-95	50-65	30-45
	10-15	Silt loam, silty clay loam.	CL, ML	A-4, A-6, A-7	0	100	100	90-100	70-95	30-50	5-25
	15-31	Indurated-----	---	---	---	---	---	---	---	---	---
	31-35	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Chilcott-----	0-7	Silt loam-----	CL-ML, ML	A-4	0	100	100	90-100	65-90	20-30	NP-10
	7-17	Silty clay loam, clay, silty clay.	CL, CH	A-7	0	100	100	90-100	75-95	45-60	25-40
	17-33	Silt loam, clay loam, loam.	CL-ML, CL	A-4, A-6	0	100	100	85-100	70-90	25-35	5-15
	33-67	Indurated-----	---	---	---	---	---	---	---	---	---
90----- Lankbush	0-8	Sandy loam-----	SM, SM-SC	A-2, A-4	0	85-100	85-100	45-65	25-40	20-30	NP-10
	8-12	Sandy loam, coarse sandy loam.	SM, SM-SC	A-2, A-4	0	85-100	85-100	45-65	25-40	20-30	NP-10
	12-50	Sandy clay loam, clay loam, loam.	CL-ML, CL, SM-SC, SC	A-2, A-4, A-6	0	85-100	85-100	70-100	30-80	25-35	5-15
	50-60	Sand, sandy loam, loamy coarse sand.	SM, SP-SM	A-1, A-2, A-3	0	85-100	85-100	45-70	5-30	---	NP
91*: Lankbush-----	0-8	Coarse sandy loam	SM, SM-SC	A-2, A-4	0	85-100	85-100	45-65	25-40	20-30	NP-10
	8-12	Sandy loam, coarse sandy loam.	SM, SM-SC	A-2, A-4	0	85-100	85-100	45-65	25-40	20-30	NP-10
	12-50	Sandy clay loam, clay loam, loam.	CL-ML, CL, SM-SC, SC	A-2, A-4, A-6	0	85-100	85-100	70-100	30-80	25-35	5-15
	50-60	Sand, sandy loam, loamy coarse sand.	SM, SP-SM	A-1, A-2, A-3	0	85-100	85-100	45-70	5-30	---	NP
Lanktree-----	0-3	Loam-----	CL-ML, CL	A-4, A-6	0	100	100	85-100	60-90	20-35	5-15
	3-35	Clay loam, clay, sandy clay.	CL	A-6, A-7	0	90-100	90-100	85-100	55-95	35-50	15-25
	35-43	Loam, silt loam, sandy loam.	CL-ML, SM-SC	A-4	0	90-100	90-100	60-90	35-75	20-30	5-10
	43-60	Loamy sand, sand, gravelly loamy sand.	SP-SM, SM	A-3, A-2	0	75-100	70-100	50-75	5-30	---	NP

See footnotes at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	<u>In</u>				<u>Pct</u>					<u>Pct</u>	
92*: Lankbush-----	0-8	Sandy loam-----	SM, SM-SC	A-2, A-4	0	85-100	85-100	45-65	25-40	20-30	NP-10
	8-12	Sandy loam, coarse sandy loam.	SM, SM-SC	A-2, A-4	0	85-100	85-100	45-65	25-40	20-30	NP-10
	12-50	Sandy clay loam, clay loam, loam.	CL-ML, CL, SM-SC, SC	A-2, A-4, A-6	0	85-100	85-100	70-100	30-80	25-35	5-15
	50-60	Sand, sandy loam, loamy coarse sand.	SM, SP-SM	A-1, A-2, A-3	0	85-100	85-100	45-70	5-30	---	NP
Jenness-----	0-6	Sandy loam-----	SM, SM-SC	A-4	0	90-100	90-100	60-70	35-50	20-30	NP-10
	6-12	Loam-----	ML, SM	A-4	0	100	90-100	80-90	40-60	20-30	NP-5
	12-36	Sandy loam-----	SM	A-2, A-4	0	100	95-100	60-85	30-45	20-30	NP-5
	36-60	Gravelly loamy sand.	SM, SP-SM	A-1	0	85-100	75-85	40-50	5-20	---	NP
93----- Lanktree	0-3	Loam-----	CL-ML, CL	A-4, A-6	0	100	100	85-100	60-90	20-35	5-15
	3-35	Clay loam, clay, sandy clay.	CL	A-6, A-7	0	90-100	90-100	85-100	55-95	35-50	15-25
	35-43	Loam, silt loam, sandy loam.	CL-ML, SM-SC	A-4	0	90-100	90-100	60-90	35-75	20-30	5-10
	43-60	Loamy sand, sand, gravelly loamy sand.	SP-SM, SM	A-3, A-2	0	75-100	70-100	50-75	5-30	---	NP
94*: Lanktree-----	0-3	Loam-----	CL-ML, CL	A-4, A-6	0	100	100	85-100	60-90	20-35	5-15
	3-35	Clay loam, clay, sandy clay.	CL	A-6, A-7	0	90-100	90-100	85-100	55-95	35-50	15-25
	35-43	Loam, silt loam, sandy loam.	CL-ML, SM-SC	A-4	0	90-100	90-100	60-90	35-75	20-30	5-10
	43-60	Loamy sand, sand, gravelly loamy sand.	SP-SM, SM	A-3, A-2	0	75-100	70-100	50-75	5-30	---	NP
Chilcott-----	0-7	Loam-----	CL-ML, ML	A-4	0	100	100	90-100	65-90	20-30	NP-10
	7-17	Silty clay loam, clay, silty clay.	CL, CH	A-7	0	100	100	90-100	75-95	45-60	25-40
	17-33	Silt loam, clay loam, loam.	CL-ML, CL	A-4, A-6	0	100	100	85-100	70-90	25-35	5-15
	33-67	Indurated-----	---	---	---	---	---	---	---	---	---
95----- Letha	0-8	Fine sandy loam	SM, ML	A-4	0	95-100	90-100	90-95	40-60	---	NP
	8-48	Sandy loam-----	SM	A-2, A-4	0	95-100	85-95	55-70	25-40	20-30	NP-5
	48-60	Loamy sand-----	SM	A-2	0	95-100	95-100	65-75	20-30	---	NP
96----- Letha	0-10	Loam-----	ML	A-4	0	90-100	90-100	70-90	50-70	15-20	NP-5
	10-60	Fine sandy loam	SM, ML	A-4	0	90-100	90-100	90-95	40-60	15-20	NP-5
97*: Letha-----	0-10	Loam-----	ML	A-4	0	90-100	90-100	70-90	50-70	15-20	NP-5
	10-60	Fine sandy loam	SM, ML	A-4	0	90-100	90-100	90-95	40-60	15-20	NP-5
Baldock-----	0-7	Loam-----	ML, CL-ML	A-4	0	100	100	75-95	55-85	20-30	NP-10
	7-60	Loam, silt loam	CL, CL-ML	A-4, A-6	0	95-100	95-100	75-95	55-85	25-35	5-15

See footnotes at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	<u>In</u>				<u>Pct</u>					<u>Pct</u>	
98----- Loray	0-13	Gravelly fine sandy loam.	GM, SM	A-1, A-2	0-5	60-80	55-75	45-60	20-30	20-25	NP-5
	13-60	Stratified extremely gravelly loamy fine sand to extremely gravelly coarse sand.	GP, GP-GM	A-1	0-15	20-35	10-25	5-20	0-10	---	NP
99*: Loray-----	0-13	Gravelly sandy loam.	GM, SM	A-1, A-2	0-5	60-80	55-75	45-60	20-30	20-25	NP-5
	13-60	Stratified extremely gravelly loamy fine sand to extremely gravelly coarse sand.	GP, GP-GM	A-1	0-15	20-35	10-25	5-20	0-10	---	NP
Dors-----	0-5	Fine sandy loam	SM-SC	A-2, A-4	0	100	100	75-95	30-40	20-25	5-10
	5-26	Very fine sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-4	0	90-100	90-100	70-95	35-60	20-25	5-10
	26-60	Very gravelly loamy sand, very gravelly loamy coarse sand, very gravelly sand.	SP, SP-SM, GP, GP-GM	A-1	0-25	40-60	25-50	20-40	0-10	---	NP
100----- Mazuma	0-16	Fine sandy loam	SM	A-2, A-4	0	90-100	85-100	60-85	30-50	20-25	NP-5
	16-40	Fine sandy loam, sandy loam.	SM	A-2, A-4	0	90-100	85-100	50-80	25-45	20-25	NP-5
	40-60	Loam, fine sandy loam, sandy loam.	SM	A-2, A-4	0	85-100	80-95	50-75	25-50	20-25	NP-5
101*: Mazuma-----	0-16	Fine sandy loam	SM	A-2, A-4	0	90-100	85-100	60-85	30-50	20-25	NP-5
	16-40	Fine sandy loam, sandy loam.	SM	A-2, A-4	0	90-100	85-100	50-80	25-45	20-25	NP-5
	40-60	Loam, fine sandy loam, sandy loam.	SM	A-2, A-4	0	85-100	80-95	50-75	25-50	20-25	NP-5
Hawsley-----	0-6	Loamy sand-----	SM	A-2, A-1	0	85-100	85-100	40-60	15-25	---	NP
	6-60	Loamy sand, sand	SM, SP-SM	A-2, A-3, A-1	0	85-100	85-100	35-60	5-20	---	NP

See footnotes at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
102----- McKeeth	0-3	Gravelly loam-----	GC, SC	A-6	0-5	60-80	60-75	50-65	35-50	30-35	10-15
	3-13	Gravelly loam, gravelly sandy clay loam, gravelly clay loam.	SC, GC	A-6, A-7, A-2	0-5	55-75	50-70	40-60	30-50	35-45	15-20
	13-24	Gravelly sandy loam, very gravelly sandy loam.	SM, GM	A-1	0-10	45-65	40-60	30-45	15-25	15-20	NP-5
	24-60	Very gravelly loamy sand, extremely gravelly coarse sand.	GP-GM, GP	A-1	5-15	15-45	10-40	5-20	0-10	---	NP
103*, 104*: Minidoka-----	0-4	Silt loam-----	ML, CL-ML	A-4	0-5	95-100	90-100	85-95	75-95	20-30	NP-10
	4-27	Silt loam-----	ML, CL-ML	A-4	0-5	95-100	95-100	95-100	90-100	20-30	NP-10
	27-43	Indurated-----	---	---	---	---	---	---	---	---	---
	43-60	Silt loam-----	ML, CL-ML	A-4	0-5	90-100	85-100	80-95	70-90	20-30	NP-10
Minveno-----	0-8	Silt loam-----	ML	A-4	0	90-100	85-100	80-100	80-90	15-25	NP-5
	8-14	Loam, silt loam	ML	A-4	0	90-100	85-100	80-100	80-90	15-25	NP-5
	14-21	Indurated-----	---	---	---	---	---	---	---	---	---
	21-25	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
105, 106----- Minveno	0-8	Silt loam-----	ML	A-4	0	90-100	85-100	80-100	80-90	15-25	NP-5
	8-14	Loam, silt loam	ML	A-4	0	90-100	85-100	80-100	80-90	15-25	NP-5
	14-21	Indurated-----	---	---	---	---	---	---	---	---	---
	21-25	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
107*: Minveno-----	0-8	Stony silt loam	ML	A-4	5-10	90-100	85-100	80-100	80-90	15-25	NP-5
	8-14	Loam, silt loam	ML	A-4	0	90-100	85-100	80-100	80-90	15-25	NP-5
	14-21	Indurated-----	---	---	---	---	---	---	---	---	---
	21-25	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Minidoka-----	0-4	Stony silt loam	ML, CL-ML	A-4	5-10	95-100	95-100	85-95	75-95	20-30	NP-10
	4-27	Silt loam-----	ML, CL-ML	A-4	0-5	95-100	95-100	95-100	90-100	20-30	NP-10
	27-43	Indurated-----	---	---	---	---	---	---	---	---	---
	43-60	Silt loam-----	ML, CL-ML	A-4	0-5	90-100	85-100	80-95	70-90	20-30	NP-10
108*: Monroe-----	0-8	Sandy loam-----	ML, SM	A-4	0	95-100	90-100	55-75	45-60	15-25	NP-5
	8-36	Loam, very fine sandy loam.	CL-ML, CL	A-4	0	100	95-100	85-95	60-75	25-35	5-15
	36-60	Sandy loam-----	SM, SM-SC	A-2, A-4	0	100	95-100	55-70	25-40	20-30	NP-10
Jenness-----	0-6	Loam-----	CL-ML, ML	A-4	0	100	100	80-90	55-65	20-30	NP-10
	6-12	Loam-----	ML, SM	A-4	0	100	90-100	80-90	40-60	20-30	NP-5
	12-36	Sandy loam-----	SM	A-2, A-4	0	100	95-100	60-85	30-45	20-30	NP-5
	36-60	Gravelly loamy sand.	SM, SP-SM	A-1	0	85-100	75-85	40-50	5-20	---	NP

See footnotes at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	<u>In</u>				<u>Pct</u>					<u>Pct</u>	
109*: Monroe-----	0-8	Sandy loam-----	ML, SM	A-4	0	95-100	90-100	55-75	45-60	15-25	NP-5
	8-36	Loam, very fine sandy loam.	CL-ML, CL	A-4	0	100	95-100	85-95	60-75	25-35	5-15
	36-60	Sandy loam-----	SM, SM-SC	A-2, A-4	0	100	95-100	55-70	25-40	20-30	NP-10
Goose Creek----	0-6	Silt loam-----	CL-ML	A-4	0	100	100	85-100	60-90	20-30	5-10
	6-60	Stratified fine sandy loam to clay.	CL	A-6	0	90-100	85-100	75-100	50-80	30-40	10-15
110*: Moran-----	0-7	Gravelly sandy loam.	SM-SC	A-2	0-5	65-85	60-75	40-60	20-30	20-30	5-10
	7-20	Gravelly sandy loam, gravelly sandy clay loam, very gravelly sandy loam.	SM-SC, SC, GM-GC, GC	A-2	5-10	50-70	45-65	35-50	15-30	20-30	5-15
	20-41	Very gravelly sandy loam, very stony sandy loam.	SM, GM	A-1	10-30	40-65	40-60	25-45	10-25	15-20	NP-5
	41-45	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Teewinot-----	0-7	Very cobbly sandy loam.	GM	A-1, A-2	30-40	45-60	35-55	30-50	20-35	15-25	NP-5
	7-14	Very cobbly sandy loam, very gravelly sandy loam.	GM	A-1, A-2	20-40	45-60	35-55	30-50	20-30	15-25	NP-5
	14-18	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Coski-----	0-11	Gravelly coarse sandy loam.	SM	A-2, A-1	0-5	65-85	60-75	30-50	20-35	20-25	NP-5
	11-42	Sandy loam, coarse sandy loam, gravelly coarse sandy loam.	SM	A-2, A-4	0-5	70-95	70-90	40-60	25-45	20-25	NP-5
	42-46	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
111----- Oland	0-17	Gravelly loam----	SM-SC, GM-GC	A-4	0-10	65-85	60-75	45-65	35-50	20-30	5-10
	17-23	Gravelly loam, very gravelly loam, very cobbly loam.	GM, SM	A-4, A-2, A-1	0-35	55-85	35-65	30-60	20-50	20-30	NP-5
	23-60	Very cobbly sandy loam, very gravelly sandy loam, extremely gravelly sandy loam.	GM, GP-GM	A-1	15-40	40-55	30-50	15-35	10-20	---	NP

See footnotes at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	<u>In</u>				<u>Pct</u>					<u>Pct</u>	
112----- Ornea	0-5	Gravelly loam----	SM, SM-SC, GM, GM-GC	A-4	0	60-85	55-75	45-60	35-50	25-35	5-10
	5-12	Gravelly loam, gravelly sandy clay loam, gravelly clay loam.	SC, CL, GC	A-6, A-7	0-5	55-80	50-75	40-65	35-55	35-45	15-20
	12-60	Very gravelly coarse sand, extremely gravelly coarse sand, very cobbly sand.	GP, SP	A-1	10-30	30-60	25-55	15-35	0-5	---	NP
113*: Owsel-----	0-4	Loam-----	ML, CL-ML	A-4	0	95-100	95-100	90-95	70-85	15-25	NP-10
	4-14	Silty clay loam	CL	A-6, A-7	0	95-100	95-100	90-100	85-95	35-45	15-25
	14-18	Silt loam-----	CL	A-6	0	95-100	95-100	90-95	75-90	25-30	10-15
	18-36	Loam, silt loam	ML, CL-ML	A-4	0	95-100	95-100	85-95	65-85	15-25	NP-10
	36-60	Sandy loam, very fine sandy loam, fine sandy loam.	ML, SM	A-4	0-5	95-100	95-100	65-90	35-55	15-20	NP-5
Purdam-----	0-6	Silt loam-----	CL-ML, ML	A-4	0	100	100	90-100	70-90	25-35	5-10
	6-15	Silty clay loam, silt loam.	CL	A-6	0	100	100	90-100	70-95	30-40	10-20
	15-21	Silt loam, loam	CL-ML, ML	A-4	0	100	100	85-100	60-90	25-35	5-10
	21-40	Cemented-----	---	---	---	---	---	---	---	---	---
	40-60	Stratified loam to very gravelly sand.	SM	A-1	0-10	70-85	40-80	25-45	10-20	20-30	NP-5
114*: Perazzo**-----	0-4	Very gravelly sandy loam.	GM	A-1	0-10	40-60	35-50	25-35	10-20	20-30	NP-5
	4-12	Very gravelly sandy clay loam, very gravelly clay loam, very gravelly loam.	GC	A-2	0-5	40-60	35-50	30-40	20-35	30-40	10-15
	12-18	Extremely gravelly sandy loam, extremely gravelly loam.	GP-GM, GM	A-1	0-5	20-30	15-25	10-20	5-15	---	NP
	18-60	Extremely gravelly sand, extremely gravelly loamy sand.	GP-GM, GP	A-1	0-5	20-30	15-25	10-20	0-10	---	NP

See footnotes at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
114*: Ornea-----	0-5	Gravelly loam----	SM, SM-SC, GM, GM-GC	A-4	0	60-85	55-75	45-60	35-50	25-35	5-10
	5-12	Gravelly loam, gravelly sandy clay loam, gravelly clay loam.	SC, CL, GC	A-6, A-7	0-5	55-80	50-75	40-65	35-55	35-45	15-20
	12-60	Very gravelly coarse sand, extremely gravelly coarse sand, very cobbly sand.	GP, SP	A-1	10-30	30-60	25-55	15-35	0-5	---	NP
Abgese-----	0-6	Sandy loam-----	SM	A-2, A-4	0-5	80-100	75-100	50-65	30-45	15-20	NP-5
	6-31	Gravelly sandy loam, gravelly sandy clay loam.	SM-SC, SC	A-2, A-4	0-5	65-80	55-75	35-50	25-45	20-40	5-20
	31-60	Very gravelly sandy loam.	GM, SM	A-1	0-5	50-60	35-50	25-35	15-20	15-20	NP-5
115*: Pits											
116----- Power	0-6	Silt loam-----	CL-ML, ML	A-4	0	100	100	90-100	70-90	20-30	NP-10
	6-19	Clay loam-----	CL	A-6	0	100	100	95-100	75-90	25-35	10-15
	19-60	Loam, silt loam, sandy loam.	CL-ML	A-4	0	100	100	95-100	60-85	20-30	5-10
117*: Power-----	0-6	Silt loam-----	CL-ML, ML	A-4	0	100	100	90-100	70-90	20-30	NP-10
	6-19	Clay loam-----	CL	A-6	0	100	100	95-100	75-90	25-35	10-15
	19-60	Loam, silt loam, sandy loam.	CL-ML	A-4	0	100	100	95-100	60-85	20-30	5-10
Chardoton**-----	0-8	Fine sandy loam	SM, SM-SC	A-2, A-4	0-5	90-100	85-100	60-75	30-50	20-30	NP-10
	8-41	Silty clay loam, clay loam, silty clay.	CL, CH	A-7	0-5	90-100	90-100	85-100	75-95	40-60	15-35
	41-55	Fine sandy loam, loam.	SM, SM-SC, ML, CL-ML	A-4	0-10	90-100	85-100	65-90	40-60	20-30	NP-10
	55-60	Indurated-----	---	---	---	---	---	---	---	---	---
118*: Power-----	0-6	Silt loam-----	CL-ML, ML	A-4	0	100	100	90-100	70-90	20-30	NP-10
	6-19	Clay loam-----	CL	A-6	0	100	100	95-100	75-90	25-35	10-15
	19-60	Loam, silt loam, sandy loam.	CL-ML	A-4	0	100	100	95-100	60-85	20-30	5-10
Jenness-----	0-6	Loam-----	CL-ML, ML	A-4	0	100	100	80-90	55-65	20-30	NP-10
	6-12	Loam-----	ML, SM	A-4	0	100	90-100	80-90	40-60	20-30	NP-5
	12-36	Sandy loam-----	SM	A-2, A-4	0	100	95-100	60-85	30-45	20-30	NP-5
	36-60	Gravelly loamy sand.	SM, SP-SM	A-1	0	85-100	75-85	40-50	5-20	---	NP
119*: Power-----	0-6	Silt loam-----	CL-ML, ML	A-4	0	100	100	90-100	70-90	20-30	NP-10
	6-19	Clay loam-----	CL	A-6	0	100	100	95-100	75-90	25-35	10-15
	19-60	Loam, silt loam, sandy loam.	CL-ML	A-4	0	100	100	95-100	60-85	20-30	5-10

See footnotes at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
119*: Purdam-----	0-6	Silt loam-----	CL-ML, ML	A-4	0	100	100	90-100	70-90	25-35	5-10
	6-15	Silty clay loam, silt loam.	CL	A-6	0	100	100	90-100	70-95	30-40	10-20
	15-21	Silt loam, loam	CL-ML, ML	A-4	0	100	100	85-100	60-90	25-35	5-10
	21-40	Cemented-----	---	---	---	---	---	---	---	---	---
	40-60	Stratified loam to very gravelly sand.	SM	A-1	0-10	70-85	40-80	25-45	10-20	20-30	NP-5
120, 121----- Purdam	0-6	Silt loam-----	CL-ML, ML	A-4	0	100	100	90-100	70-90	25-35	5-10
	6-15	Silty clay loam, silt loam.	CL	A-6	0	100	100	90-100	70-95	30-40	10-20
	15-21	Silt loam, loam	CL-ML, ML	A-4	0	100	100	85-100	60-90	25-35	5-10
	21-40	Cemented-----	---	---	---	---	---	---	---	---	---
	40-60	Stratified loam to very gravelly sand.	SM	A-1	0-10	70-85	40-80	25-45	10-20	20-30	NP-5
122*: Purdam-----	0-6	Silt loam-----	CL-ML, ML	A-4	0	100	100	90-100	70-90	25-35	5-10
	6-15	Silty clay loam, silt loam.	CL	A-6	0	100	100	90-100	70-95	30-40	10-20
	15-21	Silt loam, loam	CL-ML, ML	A-4	0	100	100	85-100	60-90	25-35	5-10
	21-40	Cemented-----	---	---	---	---	---	---	---	---	---
	40-60	Stratified loam to very gravelly sand.	SM	A-1	0-10	70-85	40-80	25-45	10-20	20-30	NP-5
Sebree**-----	0-4	Silty clay loam	CL	A-7	0	100	100	95-100	85-95	40-50	20-25
	4-10	Silty clay loam, clay loam.	CL	A-7	0	100	100	95-100	75-95	40-50	20-25
	10-21	Silt loam-----	CL-ML, CL	A-4, A-6	0	100	100	95-100	75-90	25-35	5-15
	21-56	Indurated-----	---	---	---	---	---	---	---	---	---
Owse1-----	0-4	Loam-----	ML, CL-ML	A-4	0	95-100	95-100	90-95	70-85	15-25	NP-10
	4-14	Silty clay loam	CL	A-6, A-7	0	95-100	95-100	90-100	85-95	35-45	15-25
	14-18	Silt loam-----	CL	A-6	0	95-100	95-100	90-95	75-90	25-30	10-15
	18-36	Loam, silt loam	ML, CL-ML	A-4	0	95-100	95-100	85-95	65-85	15-25	NP-10
	36-60	Sandy loam, very fine sandy loam, fine sandy loam.	ML, SM	A-4	0-5	95-100	95-100	65-90	35-55	15-20	NP-5
123*: Quartzburg-----	0-15	Gravelly loamy sand.	SM	A-1	0	60-70	50-65	20-40	10-20	---	NP
	15-36	Very gravelly loamy sand, extremely gravelly loamy coarse sand.	GP-GM, GM, SP-SM, SM	A-1	0-10	35-60	15-50	5-25	5-15	---	NP
	36-40	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnotes at end of table.



TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches Pct	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
123*: Wagontown-----	In										
	0-6	Gravelly coarse sandy loam.	SM	A-2, A-1	0-10	65-85	60-80	30-50	20-30	20-25	NP-5
	6-18	Very gravelly coarse sandy loam.	GM	A-1	0-10	40-55	35-50	15-30	10-20	20-25	NP-5
	18-41	Very gravelly loamy sand, extremely cobbly coarse sand.	GP-GM, GP	A-1	10-55	25-45	25-40	10-25	0-10	---	NP
	41-45	Weathered bedrock	---	---	---	---	---	---	---	---	---
124----- Quincy	0-3	Fine sand-----	SM, SP-SM	A-2, A-3	0	100	100	65-90	5-20	---	NP
	3-60	Loamy fine sand, fine sand, sand.	SM	A-2	0	100	100	65-80	10-30	---	NP
125----- Quincy	0-10	Loamy fine sand	SM	A-2	0	100	100	65-100	15-30	---	NP
	10-60	Loamy fine sand, fine sand, sand.	SM	A-2	0	100	100	65-80	10-30	---	NP
126*: Rainey-----	0-9	Sandy loam-----	SM	A-2, A-4	0	95-100	95-100	65-70	30-40	20-25	NP-5
	9-22	Loamy coarse sand, gravelly coarse sandy loam, gravelly loam.	SM, SM-SC, ML, CL-ML	A-1, A-2, A-4	0-5	80-95	50-95	25-85	15-55	20-30	NP-10
	22-32	Weathered bedrock	---	---	---	---	---	---	---	---	---
	32-36	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Brownlee-----	0-19	Loam-----	CL-ML	A-4	0-5	80-100	80-95	65-85	55-75	25-30	5-10
	19-54	Loam, clay loam, sandy clay loam.	CL	A-6	0-5	80-100	80-95	60-80	50-75	30-40	10-15
	54-60	Gravelly sandy clay loam, gravelly sandy loam.	SM-SC, GM-GC	A-2, A-4	0-5	60-85	55-75	35-55	25-45	25-30	5-10
127*: Rainey-----	0-9	Sandy loam-----	SM	A-2, A-4	0	95-100	95-100	65-70	30-40	20-25	NP-5
	9-22	Loamy coarse sand, gravelly coarse sandy loam, gravelly loam.	SM, SM-SC, ML, CL-ML	A-1, A-2, A-4	0-5	80-95	50-95	25-85	15-55	20-30	NP-10
	22-32	Weathered bedrock	---	---	---	---	---	---	---	---	---
	32-36	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Schoolhouse-----	0-5	Gravelly loamy sand.	SM	A-1	0-10	65-80	50-70	25-40	10-25	---	NP
	5-17	Very gravelly loamy sand, extremely gravelly loamy sand.	GP-GM, SP-SM	A-1	0-5	20-60	10-45	5-25	5-10	---	NP
	17-21	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnotes at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	<u>In</u>				<u>Pct</u>					<u>Pct</u>	
127*: Oland-----	0-17	Gravelly loam----	SM-SC, GM-GC	A-4	0-10	65-85	60-75	45-65	35-50	20-30	5-10
	17-23	Gravelly loam, very gravelly loam, very cobbly loam.	GM, SM	A-4, A-2, A-1	0-35	55-85	35-65	30-60	20-50	20-30	NP-5
	23-60	Very cobbly sandy loam, very gravelly sandy loam, extremely gravelly sandy loam.	GM, GP-GM	A-1	15-40	40-55	30-50	15-35	10-20	---	NP
128*: Rainey-----	0-9	Sandy loam-----	SM	A-2, A-4	0	95-100	95-100	65-70	30-40	20-25	NP-5
	9-22	Loamy coarse sand, gravelly coarse sandy loam, gravelly loam.	SM, SM-SC, ML, CL-ML	A-1, A-2, A-4	0-5	80-95	50-95	25-85	15-55	20-30	NP-10
	22-32	Weathered bedrock	---	---	---	---	---	---	---	---	---
	32-36	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Van Dusen-----	0-21	Loam-----	ML, CL-ML	A-4	0-5	80-100	75-100	65-100	50-90	20-30	NP-10
	21-40	Sandy clay loam, clay loam, gravelly loam.	CL, SC	A-6	0-5	75-100	60-100	50-100	35-75	25-40	10-20
	40-60	Loam, sandy loam	ML, CL-ML, SM, SM-SC	A-2, A-4	0-5	95-100	95-100	65-95	30-75	20-30	NP-10
129*: Rainey-----	0-9	Sandy loam-----	SM	A-2, A-4	0	95-100	95-100	65-70	30-40	20-25	NP-5
	9-22	Loamy coarse sand, gravelly coarse sandy loam, gravelly loam.	SM, SM-SC, ML, CL-ML	A-1, A-2, A-4	0-5	80-95	50-95	25-85	15-55	20-30	NP-10
	22-32	Weathered bedrock	---	---	---	---	---	---	---	---	---
	32-36	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Van Dusen-----	0-21	Loam-----	ML, CL-ML	A-4	0-5	80-100	75-100	65-100	50-90	20-30	NP-10
	21-40	Sandy clay loam, clay loam, gravelly loam.	CL, SC	A-6	0-5	75-100	60-100	50-100	35-75	25-40	10-20
	40-60	Loam, sandy loam	ML, CL-ML, SM, SM-SC	A-2, A-4	0-5	95-100	95-100	65-95	30-75	20-30	NP-10
Schoolhouse-----	0-5	Gravelly loamy sand.	SM	A-1	0-10	65-80	50-70	25-40	10-25	---	NP
	5-17	Very gravelly loamy sand, extremely gravelly loamy sand.	GP-GM, SP-SM	A-1	0-5	20-60	10-45	5-25	5-10	---	NP
	17-21	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnotes at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	<u>In</u>				<u>Pct</u>					<u>Pct</u>	
130*: Roanhide-----	0-8	Sandy loam-----	SM-SC	A-2, A-1	0-5	85-100	75-100	45-60	20-30	20-30	5-10
	8-32	Coarse sandy loam, sandy loam, gravelly coarse sandy loam.	SM-SC	A-2, A-1	0-10	80-100	65-90	25-30	15-20	20-30	5-10
	32-36	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Bauscher-----	0-7	Loam-----	CL-ML	A-4	0	90-100	85-95	65-85	50-70	20-30	5-10
	7-29	Loam, sandy clay loam, gravelly sandy clay loam.	CL, SC	A-2, A-6	0	90-100	50-80	45-70	30-55	25-35	10-15
	29-49	Clay loam, silty clay loam.	CL	A-6	0	90-100	85-95	65-90	60-85	30-40	10-20
	49-60	Coarse sandy loam, gravelly coarse sandy loam, sandy loam.	SM	A-2	0	75-95	65-85	40-50	25-30	20-25	NP-5
131*: Roanhide-----	0-8	Sandy loam-----	SM-SC	A-2, A-1	0-5	85-100	75-100	45-60	20-30	20-30	5-10
	8-32	Coarse sandy loam, sandy loam, gravelly coarse sandy loam.	SM-SC	A-2, A-1	0-10	80-100	65-90	25-30	15-20	20-30	5-10
	32-36	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Bauscher-----	0-7	Loam-----	CL-ML	A-4	0	90-100	85-95	65-85	50-70	20-30	5-10
	7-29	Loam, sandy clay loam, gravelly sandy clay loam.	CL, SC	A-2, A-6	0	90-100	50-80	45-70	30-55	25-35	10-15
	29-49	Clay loam, silty clay loam.	CL	A-6	0	90-100	85-95	65-90	60-85	30-40	10-20
	49-60	Coarse sandy loam, gravelly coarse sandy loam, sandy loam.	SM	A-2	0	75-95	65-85	40-50	25-30	20-25	NP-5
Schoolhouse-----	0-5	Gravelly loamy sand.	SM	A-1	0-10	65-80	50-70	25-40	10-25	---	NP
	5-17	Very gravelly loamy sand, extremely gravelly loamy sand.	GP-GM, SP-SM	A-1	0-5	20-60	10-45	5-25	5-10	---	NP
	17-21	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
132*: Rock outcrop.  Rubble land.											

See footnotes at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	<u>In</u>				<u>Pct</u>					<u>Pct</u>	
133, 134----- Royal	0-5	Fine sandy loam	SM	A-4	0	95-100	95-100	80-95	35-50	20-30	NP-5
	5-60	Sandy loam, fine sandy loam, very fine sandy loam.	SM, CL-ML, ML, SM-SC	A-4	0	95-100	95-100	65-95	35-70	20-30	NP-10
135*, 136*: Royal-----	0-5	Fine sandy loam	SM	A-4	0	95-100	95-100	80-95	35-50	20-30	NP-5
	5-60	Sandy loam, fine sandy loam, very fine sandy loam.	SM, CL-ML, ML, SM-SC	A-4	0	95-100	95-100	65-95	35-70	20-30	NP-10
Davey-----	0-15	Loamy fine sand	SM	A-2	0	95-100	95-100	75-90	25-35	---	NP
	15-22	Fine sandy loam, sandy loam.	SM	A-2	0	90-100	85-100	60-75	20-35	20-25	NP-5
	22-60	Loamy fine sand, loamy sand, gravelly sand.	SM, SP-SM	A-2, A-3	0	80-100	70-100	60-90	5-30	---	NP
137*: Royal-----	0-5	Fine sandy loam	SM	A-4	0	95-100	95-100	80-95	35-50	20-30	NP-5
	5-60	Sandy loam, fine sandy loam, very fine sandy loam.	SM, CL-ML, ML, SM-SC	A-4	0	95-100	95-100	65-95	35-70	20-30	NP-10
Shano-----	0-15	Loam-----	ML	A-4	0	100	100	90-100	70-85	20-30	NP-5
	15-42	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	75-90	20-30	NP-5
	42-60	Fine sandy loam, loamy fine sand.	SM	A-2, A-4	0	100	95-100	70-95	20-50	---	NP
Rock outcrop.											
138*: Royal-----	0-5	Fine sandy loam	SM	A-4	0	95-100	95-100	80-95	35-50	20-30	NP-5
	5-60	Sandy loam, fine sandy loam, very fine sandy loam.	SM, CL-ML, ML, SM-SC	A-4	0	95-100	95-100	65-95	35-70	20-30	NP-10
Truesdale-----	0-5	Fine sandy loam	SM, SM-SC	A-2, A-4	0	95-100	90-100	40-85	25-50	20-30	NP-10
	5-27	Fine sandy loam, sandy loam, gravelly sandy loam.	SM, SM-SC	A-2, A-4, A-1	0	95-100	70-100	40-85	20-50	20-30	NP-10
	27-60	Cemented-----	---	---	---	---	---	---	---	---	---
139----- Ruckles**	0-6	Extremely stony loam.	GC, SC	A-2, A-6	45-60	55-75	50-75	45-70	30-50	30-40	10-20
	6-11	Very stony clay, extremely stony clay.	CH, GC	A-7, A-2	40-65	25-60	25-60	25-60	20-55	60-70	35-45
	11-15	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnotes at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches Pct	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	<u>In</u>										
140*: Schoolhouse-----	0-5	Gravelly loamy sand.	SM	A-1	0-10	65-80	50-70	25-40	10-25	---	NP
	5-17	Very gravelly loamy sand, extremely gravelly loamy sand.	GP-GM, SP-SM	A-1	0-5	20-60	10-45	5-25	5-10	---	NP
	17-21	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
141----- Scism	0-12	Silt loam-----	ML, CL-ML	A-4	0	100	100	95-100	75-90	20-30	NP-10
	12-25	Silt loam, very fine sandy loam.	ML, CL-ML	A-4	0	100	100	95-100	75-100	20-30	NP-10
	25-29	Cemented-----	---	---	---	---	---	---	---	---	---
	29-60	Silt loam, loam, sandy loam.	ML, CL-ML	A-4	0	100	100	80-100	55-90	20-30	NP-10
142----- Scoon	0-3	Very fine sandy loam.	ML	A-4	0	95-100	95-100	85-95	55-70	20-25	NP-5
	3-6	Loam, fine sandy loam, silt loam.	ML	A-4	0	95-100	95-100	85-95	60-70	20-25	NP-5
	6-15	Loam, very fine sandy loam, sandy loam.	SM, ML	A-4	0	95-100	95-100	65-90	35-60	20-25	NP-5
	15-29	Indurated-----	---	---	---	---	---	---	---	---	---
	29-42	Fine sandy loam	SM	A-2, A-4	0	85-100	80-95	60-80	30-45	20-25	NP-5
	42-68	Gravelly loamy fine sand.	SM, GM	A-2, A-1	0-5	55-80	50-75	40-55	10-20	---	NP
143----- Shano	0-15	Loam-----	ML	A-4	0	100	100	90-100	70-85	20-30	NP-5
	15-42	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	75-90	20-30	NP-5
	42-60	Fine sandy loam, loamy fine sand.	SM	A-2, A-4	0	100	95-100	70-95	20-50	---	NP
144*: Shano-----	0-5	Silt loam-----	ML	A-4	0	100	100	95-100	75-90	25-40	NP-10
	5-42	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	75-90	20-30	NP-5
	42-60	Fine sandy loam, loamy fine sand.	SM	A-2, A-4	0	100	95-100	70-95	20-50	---	NP
Owsei-----	0-4	Loam-----	ML, CL-ML	A-4	0	95-100	95-100	90-95	70-85	15-25	NP-10
	4-14	Silty clay loam	CL	A-6, A-7	0	95-100	95-100	90-100	85-95	35-45	15-25
	14-18	Silt loam-----	CL	A-6	0	95-100	95-100	90-95	75-90	25-30	10-15
	18-36	Loam, silt loam	ML, CL-ML	A-4	0	95-100	95-100	85-95	65-85	15-25	NP-10
	36-60	Sandy loam, very fine sandy loam, fine sandy loam.	ML, SM	A-4	0-5	95-100	95-100	65-90	35-55	15-20	NP-5
145*: Shano-----	0-15	Fine sandy loam	SM	A-2, A-4	0	100	95-100	75-95	30-50	---	NP
	15-42	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	75-90	20-30	NP-5
	42-60	Fine sandy loam, loamy fine sand.	SM	A-2, A-4	0	100	95-100	70-95	20-50	---	NP

See footnotes at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches Pct	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
145*: Truesdale-----	In										
	0-5	Fine sandy loam	SM, SM-SC	A-2, A-4	0	95-100	90-100	40-85	25-50	20-30	NP-10
	5-27	Fine sandy loam, sandy loam, gravelly sandy loam.	SM, SM-SC	A-2, A-4, A-1	0	95-100	70-100	40-85	20-50	20-30	NP-10
	27-60	Cemented-----	---	---	---	---	---	---	---	---	---
146----- Shoofly**	0-3	Loam-----	CL-ML, CL	A-4, A-6	0	80-95	75-90	60-80	50-70	25-35	5-15
	3-12	Clay loam, gravelly clay loam, silty clay loam.	CL	A-6, A-7	0	75-95	70-90	60-85	50-75	35-50	15-30
	12-15	Indurated-----	---	---	---	---	---	---	---	---	---
	15-34	Cemented-----	---	---	---	---	---	---	---	---	---
	34-60	Very gravelly coarse sand, extremely gravelly coarse sand.	GP, SP	A-1	15-20	25-60	20-55	10-25	0-5	---	NP
147*: Shoofly**-----	0-3	Loam-----	CL-ML, CL	A-4, A-6	0	80-95	75-90	60-80	50-70	25-35	5-15
	3-12	Clay loam, gravelly clay loam, silty clay loam.	CL	A-6, A-7	0	75-95	70-90	60-85	50-75	35-50	15-30
	12-15	Indurated-----	---	---	---	---	---	---	---	---	---
	15-34	Cemented-----	---	---	---	---	---	---	---	---	---
	34-60	Very gravelly coarse sand, extremely gravelly coarse sand.	GP, SP	A-1	15-20	25-60	20-55	10-25	0-5	---	NP
Ornea-----	0-5	Gravelly loam----	SM, SM-SC, GM, GM-GC	A-4	0	60-85	55-75	45-60	35-50	25-35	5-10
	5-12	Gravelly loam, gravelly sandy clay loam, gravelly clay loam.	SC, CL, GC	A-6, A-7	0-5	55-80	50-75	40-65	35-55	35-45	15-20
	12-60	Very gravelly coarse sand, extremely gravelly coarse sand, very cobbly sand.	GP, SP	A-1	10-30	30-60	25-55	15-35	0-5	---	NP
148*: Sidlake-----	0-4	Loam-----	CL-ML	A-4	0	85-100	80-95	60-80	50-65	25-30	5-10
	4-16	Loam, clay loam, sandy clay loam.	CL, SC	A-6	0-5	85-100	80-95	50-75	40-65	30-35	10-15
	16-23	Gravelly loam, very gravelly sandy clay loam.	SM-SC, GM-GC	A-2, A-4	5-10	50-70	45-65	30-55	20-45	25-30	5-10
	23-26	Weathered bedrock	---	---	---	---	---	---	---	---	---
	26-30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnotes at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	<u>In</u>				<u>Pct</u>					<u>Pct</u>	
148*: Bruncan-----	0-12	Gravelly loam----	CL, CL-ML, GM-GC, GC	A-4, A-6	0-5	65-85	60-80	45-65	35-55	25-35	5-15
	12-15	Very cobbly silt loam, very cobbly loam, very gravelly loam.	GM, GM-GC, ML, CL-ML	A-2, A-4	15-50	45-75	40-70	35-65	25-55	20-30	NP-10
	15-27	Indurated-----	---	---	---	---	---	---	---	---	---
	27-31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
149----- Simonton	0-4	Loam-----	CL-ML, SM-SC	A-4	0	85-100	75-100	60-95	45-75	20-30	5-10
	4-42	Loam, clay loam, sandy clay loam.	CL, SC	A-6, A-7	0	85-100	75-100	60-95	45-75	30-45	10-20
	42-60	Loamy coarse sand, sandy loam.	SM	A-2, A-1	0	85-100	75-100	40-65	15-30	---	NP
150*: Simonton-----	0-4	Loam-----	CL-ML, SM-SC	A-4	0	85-100	75-100	60-95	45-75	20-30	5-10
	4-42	Loam, clay loam, sandy clay loam.	CL, SC	A-6, A-7	0	85-100	75-100	60-95	45-75	30-45	10-20
	42-60	Loamy coarse sand, sandy loam.	SM	A-2, A-1	0	85-100	75-100	40-65	15-30	---	NP
Bauscher-----	0-7	Loam-----	CL-ML	A-4	0	90-100	85-95	65-85	50-70	20-30	5-10
	7-29	Loam, sandy clay loam, gravelly sandy clay loam.	CL, SC	A-2, A-6	0	90-100	50-80	45-70	30-55	25-35	10-15
	29-49	Clay loam, silty clay loam.	CL	A-6	0	90-100	85-95	65-90	60-85	30-40	10-20
	49-60	Coarse sandy loam, gravelly coarse sandy loam, sandy loam.	SM	A-2	0	75-95	65-85	40-50	25-30	20-25	NP-5
151*: Simonton-----	0-4	Loam-----	CL-ML, SM-SC	A-4	0	85-100	75-100	60-95	45-75	20-30	5-10
	4-42	Loam, clay loam, sandy clay loam.	CL, SC	A-6, A-7	0	85-100	75-100	60-95	45-75	30-45	10-20
	42-60	Loamy coarse sand, sandy loam.	SM	A-2, A-1	0	85-100	75-100	40-65	15-30	---	NP
Elkcreek-----	0-4	Stony loam-----	CL-ML, CL	A-4, A-6	10-20	90-100	85-100	70-95	60-75	25-35	5-15
	4-10	Stony clay loam	CL, SC	A-6, A-7	10-20	80-100	75-95	50-75	40-65	35-45	15-25
	10-22	Stony loam-----	CL	A-6	15-25	90-100	85-100	70-95	60-75	30-35	10-15
	22-26	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnotes at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
152*: Stavelly-----	0-4	Coarse sandy loam	SM	A-2, A-4	0	90-100	90-100	45-65	30-45	---	NP
	4-28	Sandy loam, coarse sandy loam, gravelly coarse sandy loam.	SM	A-2, A-4	0-5	80-95	70-95	40-70	25-45	---	NP
	28-60	Gravelly loamy coarse sand, very gravelly coarse sand.	SM, GP-GM, SP-SM, GM	A-2, A-1	0-10	50-80	40-75	15-40	5-30	---	NP
Coski-----	0-11	Gravelly coarse sandy loam.	SM	A-2, A-1	0-5	65-85	60-75	30-50	20-35	20-25	NP-5
	11-42	Sandy loam, coarse sandy loam, gravelly coarse sandy loam.	SM	A-2, A-4	0-5	70-95	70-90	40-60	25-45	20-25	NP-5
	42-46	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Switchback-----	0-11	Sandy loam-----	SM	A-2, A-4	0-5	80-100	80-95	45-65	25-45	20-25	NP-5
	11-37	Gravelly sandy loam, gravelly loam, gravelly coarse sandy loam.	SM	A-1, A-2, A-4	5-15	60-80	55-70	35-65	20-50	20-25	NP-5
	37-41	Weathered bedrock	---	---	---	---	---	---	---	---	---
153*: Switchback-----	0-11	Sandy loam-----	SM	A-2, A-4	0-5	80-100	80-95	45-65	25-45	20-25	NP-5
	11-37	Gravelly sandy loam, gravelly loam, gravelly coarse sandy loam.	SM	A-1, A-2, A-4	5-15	60-80	55-70	35-65	20-50	20-25	NP-5
	37-41	Weathered bedrock	---	---	---	---	---	---	---	---	---
Grousecreek-----	0-12	Gravelly sandy loam.	SM-SC, SM	A-2, A-1	0-10	70-90	60-80	40-60	20-30	15-25	NP-10
	12-32	Very gravelly sandy loam, very gravelly coarse sandy loam.	GM-GC, SM-SC, GM, SM	A-2, A-1	5-25	40-65	35-55	20-40	10-20	15-25	NP-10
	32-50	Extremely gravelly loamy sand, very gravelly coarse sandy loam.	GP-GM, GM	A-1	5-35	20-45	15-40	10-25	5-15	---	NP
	50-54	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnotes at end of table.



TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
154----- Timmerman	0-7	Extremely bouldery loamy sand.	SM	A-2	30-50	95-100	95-100	65-70	20-30	---	NP
	7-16	Bouldery sandy loam.	SM	A-4	20-35	90-100	85-100	60-85	35-50	20-25	NP-5
	16-60	Bouldery loamy coarse sand, bouldery coarse sand.	SP-SM, SM	A-1, A-2, A-3	20-35	90-100	80-90	40-55	5-20	---	NP
155, 156----- Timmerman**	0-6	Sandy loam-----	SM	A-4	0	95-100	85-100	50-75	35-50	20-25	NP-5
	6-17	Sandy loam, coarse sandy loam.	SM	A-4	0	95-100	85-100	50-80	35-50	20-25	NP-5
	17-60	Loamy coarse sand, coarse sand.	SP, SP-SM, SM	A-1	0	100	85-100	10-20	0-20	---	NP
157*: Trevino-----	0-5	Stony loam-----	CL-ML	A-4	5-15	95-100	90-100	75-95	55-75	20-30	5-10
	5-12	Loam, stony loam, silt loam.	CL-ML	A-4	0-25	85-100	85-100	75-100	55-80	20-30	5-10
	12-18	Fine sandy loam, loam, cobbly loam.	SM, ML, CL-ML, SM-SC	A-4	0-25	75-100	70-90	55-75	40-55	20-30	NP-10
	18-22	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Garbutt-----	0-5	Silt loam-----	CL-ML	A-4	0	95-100	95-100	90-100	80-90	20-30	5-10
	5-60	Silt loam, very fine sandy loam.	ML, CL-ML	A-4	0	95-100	95-100	95-100	75-90	20-30	NP-10
Weso-----	0-5	Loam-----	ML	A-4	0	95-100	90-100	80-95	60-75	15-25	NP-5
	5-30	Fine sandy loam, very fine sandy loam, loam.	ML, CL-ML, SM, SM-SC	A-4	0	95-100	85-95	70-85	45-60	15-30	NP-10
	30-60	Stratified very gravelly loamy sand to fine sandy loam.	SM	A-1, A-2	0	80-90	70-80	45-55	20-30	---	NP
158*: Trevino-----	0-5	Very stony loam	CL-ML	A-4	5-15	95-100	90-100	75-95	55-75	20-30	5-10
	5-12	Loam, stony loam, silt loam.	CL-ML	A-4	0-25	85-100	85-100	75-100	55-80	20-30	5-10
	12-18	Fine sandy loam, loam, cobbly loam.	SM, ML, CL-ML, SM-SC	A-4	0-25	75-100	70-90	55-75	40-55	20-30	NP-10
	18-22	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Minidoka-----	0-12	Silt loam-----	ML, CL-ML	A-4	0-5	95-100	90-100	85-95	75-95	20-30	NP-10
	12-27	Silt loam-----	ML, CL-ML	A-4	0-5	95-100	95-100	95-100	90-100	20-30	NP-10
	27-43	Indurated-----	---	---	---	---	---	---	---	---	---
	43-60	Silt loam-----	ML, CL-ML	A-4	0-5	90-100	85-100	80-95	70-90	20-30	NP-10

See footnotes at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
159*: Trevino-----	0-5	Stony loam-----	CL-ML	A-4	5-15	95-100	90-100	75-95	55-75	20-30	5-10
	5-12	Loam, stony loam, silt loam.	CL-ML	A-4	0-25	85-100	85-100	75-100	55-80	20-30	5-10
	12-18	Fine sandy loam, loam, cobbly loam.	SM, ML, CL-ML, SM-SC	A-4	0-25	75-100	70-90	55-75	40-55	20-30	NP-10
	18-22	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
160*: Trosi-----	0-3	Gravelly loam----	GC, GM-GC	A-6, A-4	0-10	60-75	55-70	50-65	35-45	25-35	5-15
	3-6	Gravelly clay loam, very gravelly clay loam.	GC, CL	A-7	0-15	50-80	45-80	40-70	35-55	40-50	15-25
	6-16	Very gravelly clay, very gravelly clay loam, very cobbly silty clay loam.	GC, CH, CL	A-7, A-2	0-40	40-65	35-60	30-60	25-55	40-60	20-30
	16-28	Indurated-----	---	---	---	---	---	---	---	---	---
	28-60	Very gravelly loamy sand, extremely gravelly loamy coarse sand.	GP, GP-GM	A-1	10-25	20-40	15-35	10-25	0-10	---	NP
Chilcott-----	0-4	Gravelly loam----	CL-ML, CL, GC, GM-GC	A-4, A-6	0-5	65-85	55-75	45-65	35-55	25-35	5-15
	4-7	Gravelly clay loam.	GC, SC	A-7	0-5	65-80	50-70	45-55	35-45	40-45	20-25
	7-19	Gravelly clay----	GC, SC	A-7	0-5	65-80	50-70	45-55	40-50	50-65	25-35
	19-22	Very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	0-15	55-65	35-45	30-40	30-40	40-65	20-35
	22-40	Indurated-----	---	---	---	---	---	---	---	---	---
Tenmile-----	0-10	Gravelly loam----	GC, SM-SC, SC, GM-GC	A-4, A-6, A-2	0-20	55-80	50-75	40-65	30-50	25-40	5-15
	10-46	Very gravelly clay loam, very gravelly sandy clay loam, extremely gravelly clay.	GC	A-2, A-6, A-7	0-15	25-60	20-50	15-50	15-40	35-65	15-35
	46-60	Very gravelly loamy coarse sand, very gravelly sand.	GP, GP-GM	A-1	10-20	40-50	10-30	5-20	0-10	---	NP
161, 162----- Truesdale	0-5	Fine sandy loam	SM, SM-SC	A-2, A-4	0	95-100	90-100	40-85	25-50	20-30	NP-10
	5-27	Fine sandy loam, sandy loam, gravelly sandy loam.	SM, SM-SC	A-2, A-4, A-1	0	95-100	70-100	40-85	20-50	20-30	NP-10
	27-60	Cemented-----	---	---	---	---	---	---	---	---	---

See footnotes at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	<u>In</u>				<u>Pct</u>					<u>Pct</u>	
163----- Typic Torriorthents	0-6 6-60	Fine sandy loam Variable-----	SM, SM-SC ---	A-2, A-4 ---	0-5 ---	80-100 ---	80-100 ---	70-95 ---	30-50 ---	20-30 ---	NP-10 ---
164*: Typic Torriorthents--	0-10 10-60	Fine sandy loam Variable-----	SM, SM-SC ---	A-2, A-4 ---	0-5 ---	80-100 ---	80-100 ---	70-95 ---	30-50 ---	20-30 ---	NP-10 ---
Badland.											
165*: Typic Torriorthents--	0-6 6-60	Stony sandy loam Variable-----	SM ---	A-2, A-4 ---	10-20 ---	80-90 ---	75-85 ---	40-55 ---	25-40 ---	20-25 ---	NP-5 ---
Rubble land.											
166*. Urban land											
167, 168----- Vanderhoff	0-3 3-32 32-36	Fine sandy loam Gravelly loam, silt loam, very fine sandy loam. Weathered bedrock	SM SM, SM-SC, ML, CL-ML ---	A-2, A-4 A-2, A-4 ---	0-5 0-5 ---	80-100 80-100 ---	75-100 60-100 ---	65-85 50-90 ---	25-40 30-70 ---	20-30 20-30 ---	NP-5 NP-10 ---
169*: Vanderhoff-----	0-19 19-32 32-36	Gravelly fine sandy loam. Gravelly loam, silt loam, very fine sandy loam. Weathered bedrock	SM SM, SM-SC, ML, CL-ML ---	A-2 A-2, A-4 ---	0-5 0-5 ---	75-100 80-100 ---	60-75 60-100 ---	50-70 50-90 ---	20-35 30-70 ---	20-30 20-30 ---	NP-5 NP-10 ---
Buko-----	0-7 7-24 24-60	Fine sandy loam Clay loam, loam, silt loam. Very gravelly loamy sand, very gravelly sand, extremely cobbly sand.	SM CL, CL-ML GP-GM, GM, GP	A-4 A-4, A-6 A-1	0 0 5-60	100 100 40-50	85-95 95-100 25-50	60-85 85-95 15-35	35-50 60-85 0-15	15-25 25-35 ---	NP-5 5-15 NP
Loray-----	0-13 13-60	Gravelly fine sandy loam. Stratified extremely gravelly loamy fine sand to extremely gravelly coarse sand.	GM, SM GP, GP-GM	A-1, A-2 A-1	0-5 0-15	60-80 20-35	55-75 10-25	45-60 5-20	20-30 0-10	20-25 ---	NP-5 NP
170----- Vining**	0-4 4-12 12-37 37-41	Very stony fine sandy loam. Loam, fine sandy loam. Fine sandy loam, sandy loam. Unweathered bedrock.	SM SM SM ---	A-2, A-4 A-2, A-4 A-2, A-4 ---	30-50 0-5 0-5 ---	70-100 80-100 80-100 ---	65-90 80-95 80-95 ---	60-80 65-85 60-80 ---	25-45 30-50 30-45 ---	20-25 20-25 20-25 ---	NP-5 NP-5 NP-5 ---

See footnotes at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches Pct	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
171*: Willhill-----	<u>In</u>										
	0-3	Stony loam-----	CL-ML, ML	A-4	5-15	75-85	70-80	60-70	50-60	20-30	NP-10
	3-8	Very gravelly clay loam, gravelly clay loam, very cobbly clay loam.	CL-ML, CL, GC, GM-GC	A-4, A-6	15-50	65-85	60-80	55-80	40-65	25-40	5-20
	8-24	Extremely gravelly loam, extremely cobbly loam.	GC, GM-GC	A-2	30-50	25-45	20-40	20-35	15-30	20-30	5-15
	24-28	Weathered bedrock	---	---	---	---	---	---	---	---	---
Cottle-----	0-4	Stony loam-----	GC, GM-GC, SC, SM-SC	A-4, A-6	10-20	70-90	65-85	55-75	35-50	25-35	5-15
	4-14	Very stony clay loam, very gravelly clay loam, extremely gravelly clay loam.	GC	A-2	15-35	40-60	35-55	30-45	20-35	35-45	15-20
	14-18	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
172*: Xeric Torriorthents--	0-5	Fine sandy loam	SM, SM-SC	A-2, A-4	0-5	85-100	80-100	60-90	20-50	15-20	NP-5
	5-60	Variable-----	---	---	---	---	---	---	---	---	---
Xerollic Camborthids***	0-10	Fine sandy loam	ML, CL-ML, SM, SM-SC	A-4	0-5	85-100	80-100	50-75	40-65	20-30	NP-10
	10-60	Variable-----	---	---	---	---	---	---	---	---	---
173*: Xeric Torriorthents--	0-5	Fine sandy loam	SM, SM-SC	A-2, A-4	0-5	85-100	80-100	60-90	20-50	15-20	NP-5
	5-60	Variable-----	---	---	---	---	---	---	---	---	---
Xerollic Camborthids***	0-10	Loam-----	ML, CL-ML, SM, SM-SC	A-4	0-5	85-100	80-100	50-75	40-65	20-30	NP-10
	10-60	Variable-----	---	---	---	---	---	---	---	---	---
174----- Yutru	0-8	Very stony silty clay.	CL, CH	A-7	10-20	85-100	85-100	80-100	65-95	45-55	25-35
	8-34	Clay, silty clay	CL, CH	A-7	0-25	75-100	75-100	65-100	60-95	45-55	25-35
	34-45	Silty clay loam, clay loam.	ML, CL	A-6, A-7	0-25	75-100	75-100	70-100	65-95	35-45	10-20
	45-60	Silt loam-----	CL-ML, ML	A-4	0-25	75-100	75-100	65-100	60-90	25-35	5-10

\* See description of the map unit for composition and behavior characteristics of the map unit.

\*\* Upper layer is mixed.

TABLE 13.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS

(The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Organic matter" apply only to the upper layer. Absence of an entry indicates that data were not available or were not estimated)

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter
									K	T		
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm					Pct
1, 2----- Abgese	0-6 6-31 31-60	5-10 18-30 5-10	1.50-1.60 1.35-1.45 1.50-1.60	2.0-6.0 0.6-2.0 2.0-6.0	0.11-0.13 0.12-0.15 0.09-0.11	7.9-8.4 7.9-8.4 7.9-8.4	<2 <2 <2	Low----- Moderate Low-----	0.20 0.15 0.10	5	2	.5-.7
3----- Abgese	0-6 6-31 31-60	5-15 18-30 5-10	1.40-1.50 1.35-1.45 1.50-1.60	2.0-6.0 0.6-2.0 2.0-6.0	0.10-0.12 0.12-0.15 0.09-0.11	7.9-8.4 7.9-8.4 7.9-8.4	<2 <2 <2	Low----- Moderate Low-----	0.17 0.15 0.10	5	3	.7-1
4----- Arbidge	0-8 8-17 17-27 27-34	12-18 22-30 18-25 ---	1.40-1.50 1.40-1.50 1.55-1.65 ---	2.0-6.0 0.2-0.6 0.6-2.0 ---	0.13-0.15 0.15-0.19 0.13-0.17 ---	6.6-7.8 6.6-7.8 7.4-8.4 ---	<2 <2 <2 ---	Low----- Moderate Low----- ---	0.24 0.28 0.24 ---	2	3	1-2
5*: Arbidge-----	0-8 8-17 17-27 27-34	14-20 22-30 18-25 ---	1.40-1.50 1.40-1.50 1.55-1.65 ---	0.6-2.0 0.2-0.6 0.6-2.0 ---	0.15-0.19 0.15-0.19 0.13-0.17 ---	6.6-7.8 6.6-7.8 7.4-8.4 ---	<2 <2 <2 ---	Low----- Moderate Low----- ---	0.28 0.28 0.24 ---	2	5	1-2
Buko-----	0-7 7-24 24-60	4-18 18-30 0-10	1.45-1.50 1.50-1.60 1.60-1.70	2.0-6.0 0.2-0.6 6.0-20	0.10-0.14 0.18-0.20 0.03-0.07	7.4-8.4 7.9-8.4 7.9-8.4	<2 <2 <2	Low----- Moderate Low-----	0.20 0.43 0.10	2	3	1-2
6*: Badge-----	0-3 3-21 21-43 43-54 54-58	15-25 15-25 30-38 30-38 ---	1.35-1.45 1.35-1.45 1.40-1.55 1.45-1.55 ---	0.6-2.0 0.6-2.0 0.2-0.6 0.2-0.6 ---	0.10-0.15 0.10-0.15 0.08-0.12 0.08-0.12 ---	6.6-7.8 6.6-7.8 6.6-7.8 6.6-7.8 ---	<2 <2 <2 <2 ---	Low----- Low----- Moderate Moderate ---	0.28 0.32 0.17 0.17 ---	3	5	1-2
Immiant-----	0-10 10-20 20-28 28-32	20-25 25-35 25-35 ---	1.40-1.55 1.40-1.55 1.45-1.55 ---	0.6-2.0 0.2-0.6 0.2-0.6 ---	0.13-0.15 0.13-0.16 0.12-0.14 ---	6.6-7.8 6.6-7.8 6.6-7.8 ---	<2 <2 <2 ---	Low----- Moderate Moderate ---	0.28 0.32 0.24 ---	2	6	1-3
Rubble land.												
7, 8----- Bahem	0-3 3-46 46-60	10-18 10-18 0-10	--- --- ---	0.6-2.0 0.6-2.0 0.6-2.0	0.16-0.18 0.15-0.17 0.14-0.16	7.4-8.4 7.9-8.4 7.9-9.0	<2 <2 <2	Low----- Low----- Low-----	0.43 0.49 0.32	5	4L	1-3
9*: Bahem-----	0-3 3-46 46-60	10-18 10-18 0-10	--- --- ---	0.6-2.0 0.6-2.0 0.6-2.0	0.16-0.18 0.15-0.17 0.14-0.16	7.4-8.4 7.9-8.4 7.9-9.0	<2 <2 <2	Low----- Low----- Low-----	0.43 0.49 0.32	5	4L	1-3
Minidoka-----	0-4 4-27 27-43 43-60	10-18 10-18 --- 10-18	1.30-1.40 1.30-1.40 --- 1.30-1.40	0.6-2.0 0.6-2.0 --- 0.6-2.0	0.19-0.21 0.19-0.21 --- 0.19-0.21	7.4-8.4 7.4-8.4 --- 7.4-8.4	<2 <2 --- <2	Low----- Low----- --- Low-----	0.49 0.49 --- 0.49	2	4L	1-3
Trevino-----	0-5 5-12 12-18 18-22	12-18 12-18 10-18 ---	1.40-1.55 1.50-1.60 1.50-1.60 ---	0.6-2.0 0.6-2.0 0.6-2.0 ---	0.16-0.18 0.16-0.21 0.12-0.16 ---	6.6-7.8 6.6-8.4 6.6-8.4 ---	<2 <2 <2 ---	Low----- Low----- Low----- ---	0.28 0.28 0.32 ---	1	6	1-3

See footnote at end of table.

TABLE 13.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Soil reaction	Salinity	Shrink- swell potential	Erosion factors		Wind erodi- bility group	Organic matter
									K	T		
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm					Pct
10----- Baldock	0-7 7-60	12-22 18-27	1.35-1.50 1.40-1.60	0.6-2.0 0.6-2.0	0.09-0.14 0.09-0.14	7.9-9.0 7.9-9.0	8-16 8-16	Low----- Low-----	0.37 0.32	5	4L	1-2
11----- Bram	0-11 11-36 36-65	12-18 18-34 12-18	1.25-1.35 1.50-1.60 1.50-1.60	0.6-2.0 0.2-0.6 0.2-0.6	0.14-0.17 0.08-0.11 0.10-0.14	>8.4 >8.4 >8.4	8-16 8-16 8-16	Low----- Low----- Low-----	0.43 0.43 0.43	5	4L	1-2
12----- Bramwell	0-9 9-44 44-60	28-34 18-34 15-25	1.20-1.30 1.40-1.50 1.40-1.50	0.6-2.0 0.06-0.2 0.6-2.0	0.19-0.21 0.19-0.21 0.17-0.20	7.9-9.0 7.9-9.0 7.9-9.0	>8 4-16 4-16	Moderate Moderate Low-----	0.43 0.49 0.43	5	5	1-2
13----- Brinegar	0-8 8-25 25-47 47-60	20-25 20-25 24-35 30-36	1.50-1.60 1.50-1.60 1.55-1.65 1.55-1.65	0.6-2.0 0.6-2.0 0.2-0.6 0.2-0.6	0.16-0.18 0.16-0.18 0.14-0.20 0.17-0.19	6.1-7.3 6.1-7.3 6.1-7.3 6.1-7.3	<2 <2 <2 <2	Low----- Low----- Moderate Moderate	0.24 0.28 0.28 0.32	5	6	2-4
14*: Broad Canyon----	0-9 9-15 15-33 33-50 50-54	5-12 5-12 5-10 2-6 ---	1.45-1.50 1.55-1.65 1.55-1.65 1.60-1.70 ---	2.0-6.0 2.0-6.0 2.0-6.0 6.0-20 ---	0.07-0.09 0.06-0.08 0.05-0.07 0.03-0.05 ---	5.6-6.5 5.6-6.5 5.6-7.3 5.6-7.3 ---	<2 <2 <2 <2 ---	Low----- Low----- Low----- Low----- ---	0.10 0.10 0.05 0.05 ---	4	5	1-3
Coski-----	0-11 11-42 42-46	5-12 7-15 ---	1.45-1.50 1.55-1.65 ---	2.0-6.0 2.0-6.0 ---	0.08-0.09 0.08-0.11 ---	5.6-6.5 5.6-6.5 ---	<2 <2 ---	Low----- Low----- ---	0.10 0.15 ---	3	5	1-3
15*: Broad Canyon----	0-9 9-15 15-33 33-50 50-54	5-12 5-12 5-10 2-6 ---	1.45-1.50 1.55-1.65 1.55-1.65 1.60-1.70 ---	2.0-6.0 2.0-6.0 2.0-6.0 6.0-20 ---	0.07-0.09 0.06-0.08 0.05-0.07 0.03-0.05 ---	5.6-6.5 5.6-6.5 5.6-7.3 5.6-7.3 ---	<2 <2 <2 <2 ---	Low----- Low----- Low----- Low----- ---	0.10 0.10 0.05 0.05 ---	4	5	1-3
Grousecreek----	0-12 12-32 32-50 50-54	12-18 12-18 2-10 ---	1.50-1.60 1.55-1.65 1.60-1.70 ---	2.0-6.0 2.0-6.0 6.0-20 ---	0.07-0.10 0.04-0.07 0.02-0.04 ---	5.6-7.3 5.6-7.3 5.6-7.3 ---	<2 <2 <2 ---	Low----- Low----- Low----- ---	0.05 0.02 0.02 ---	3	5	2-4
16*: Broad Canyon----	0-9 9-15 15-33 33-50 50-54	5-12 5-12 5-10 2-6 ---	1.45-1.50 1.55-1.65 1.55-1.65 1.60-1.70 ---	2.0-6.0 2.0-6.0 2.0-6.0 6.0-20 ---	0.07-0.09 0.06-0.08 0.05-0.07 0.03-0.05 ---	5.6-6.5 5.6-6.5 5.6-7.3 5.6-7.3 ---	<2 <2 <2 <2 ---	Low----- Low----- Low----- Low----- ---	0.10 0.10 0.05 0.05 ---	4	5	1-3
Switchback----	0-11 11-37 37-41	5-15 5-15 ---	1.20-1.40 1.25-1.50 ---	0.6-2.0 0.6-2.0 ---	0.10-0.12 0.10-0.12 ---	6.6-7.3 6.6-7.3 ---	<2 <2 ---	Low----- Low----- ---	0.20 0.15 ---	2	---	1-3
17----- Brownlee	0-19 19-54 54-60	18-24 24-35 15-25	1.40-1.50 1.40-1.50 1.50-1.60	0.6-2.0 0.2-0.6 0.6-2.0	0.15-0.18 0.15-0.18 0.08-0.12	5.6-7.3 5.6-7.3 5.6-7.3	<2 <2 <2	Low----- Moderate Low-----	0.32 0.28 0.15	5	6	1-3
18*: Brownlee-----	0-19 19-54 54-60	18-24 24-35 15-25	1.40-1.50 1.40-1.50 1.50-1.60	0.6-2.0 0.2-0.6 0.6-2.0	0.15-0.18 0.15-0.18 0.08-0.12	5.6-7.3 5.6-7.3 5.6-7.3	<2 <2 <2	Low----- Moderate Low-----	0.32 0.28 0.15	5	6	1-3

See footnote at end of table.

TABLE 13.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Soil reaction	Salinity	Shrink- swell potential	Erosion factors		Wind erodi- bility group	Organic matter
									K	T		
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm					Pct
18*: Immiant-----	0-10	20-25	1.40-1.55	0.6-2.0	0.13-0.15	6.6-7.8	<2	Low-----	0.28	2	6	1-3
	10-20	25-35	1.40-1.55	0.2-0.6	0.13-0.16	6.6-7.8	<2	Moderate	0.32			
	20-28	25-35	1.45-1.55	0.2-0.6	0.12-0.14	6.6-7.8	<2	Moderate	0.24			
	28-32	---	---	---	---	---	---	---	---			
19*: Brownlee-----	0-19	18-24	1.40-1.50	0.6-2.0	0.15-0.18	5.6-7.3	<2	Low-----	0.32	5	6	1-3
	19-54	24-35	1.40-1.50	0.2-0.6	0.15-0.18	5.6-7.3	<2	Moderate	0.28			
	54-60	15-25	1.50-1.60	0.6-2.0	0.08-0.12	5.6-7.3	<2	Low-----	0.15			
Van Dusen-----	0-21	12-20	1.10-1.30	0.6-2.0	0.16-0.21	6.1-7.8	<2	Low-----	0.24	4	5	3-5
	21-40	22-30	1.40-1.50	0.2-0.6	0.14-0.21	6.1-7.8	<2	Moderate	0.32			
	40-60	10-18	1.50-1.70	0.6-2.0	0.11-0.18	6.6-7.8	<2	Low-----	0.32			
20*: Bruncan-----	0-3	17-25	---	0.6-2.0	0.12-0.16	7.4-8.4	<2	Low-----	0.24	1	8	1-3
	3-12	23-33	---	0.2-0.6	0.15-0.18	7.4-9.0	<2	Moderate	0.32			
	12-15	16-24	---	0.6-2.0	0.08-0.11	>7.8	<4	Low-----	0.15			
	15-27	---	---	---	---	---	---	---	---			
	27-31	---	---	---	---	---	---	---	---			
Troughs-----	0-4	20-26	---	0.2-0.6	0.09-0.15	7.4-8.4	<2	Low-----	0.17	1	6	1-4
	4-15	27-35	---	0.2-0.6	0.10-0.14	7.4-9.0	<2	Moderate	0.17			
	15-22	---	---	---	---	---	---	---	---			
21, 22----- Buko	0-7	4-18	1.45-1.50	2.0-6.0	0.10-0.14	7.4-8.4	<2	Low-----	0.20	2	3	1-2
	7-24	18-30	1.50-1.60	0.2-0.6	0.18-0.20	7.9-8.4	<2	Moderate	0.43			
	24-60	0-10	1.60-1.70	6.0-20	0.03-0.07	7.9-8.4	<2	Low-----	0.10			
23----- Chardoton	0-8	20-27	1.35-1.45	0.2-0.6	0.18-0.20	7.4-8.4	<4	Moderate	0.37	3	5	1-3
	8-41	35-55	1.40-1.50	0.06-0.2	0.15-0.18	7.4-9.0	<4	High-----	0.32			
	41-55	15-20	1.50-1.60	0.6-2.0	0.12-0.15	7.4-9.0	<4	Low-----	0.24			
	55-60	---	---	---	---	---	---	---	---			
24----- Chilcott	0-7	12-18	1.20-1.40	0.6-2.0	0.19-0.21	6.6-7.8	<2	Low-----	0.49	2	5	1-2
	7-17	35-60	1.35-1.50	0.06-0.2	0.14-0.21	7.4-7.8	<2	High-----	0.32			
	17-33	12-35	1.30-1.50	0.2-0.6	0.16-0.21	7.4-8.4	<2	Moderate	0.43			
	33-67	---	---	---	---	---	---	---	---			
25----- Chilcott	0-7	27-35	1.40-1.50	0.2-0.6	0.14-0.16	6.6-7.8	<2	Moderate	0.24	2	4L	2-4
	7-17	43-55	1.20-1.40	0.06-0.2	0.15-0.17	7.4-8.4	<4	High-----	0.32			
	17-33	25-39	1.40-1.50	0.2-0.6	0.17-0.19	7.4-8.4	<4	Moderate	0.37			
	33-39	---	---	---	---	---	---	---	---			
	39-67	---	---	---	---	---	---	---	---			
26*: Chilcott-----	0-7	27-35	1.40-1.50	0.2-0.6	0.14-0.16	6.6-7.8	<2	Moderate	0.24	2	4L	2-4
	7-17	43-55	1.20-1.40	0.06-0.2	0.15-0.17	7.4-8.4	<4	High-----	0.32			
	17-33	25-39	1.40-1.50	0.2-0.6	0.17-0.19	7.4-8.4	<4	Moderate	0.37			
	33-39	---	---	---	---	---	---	---	---			
	39-67	---	---	---	---	---	---	---	---			
Day-----	0-6	45-55	1.30-1.40	0.06-0.2	0.14-0.16	6.6-7.8	<2	High-----	0.24	5	6	1-2
	6-14	60-70	1.20-1.30	<0.06	0.14-0.16	6.6-7.8	<2	High-----	0.24			
	14-65	35-45	1.35-1.45	0.06-0.2	0.16-0.18	7.4-8.4	<2	High-----	0.28			
Rock outcrop.												

See footnote at end of table.

TABLE 13.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Soil reaction	Salinity	Shrink- swell potential	Erosion factors		Wind erodi- bility group	Organic matter
									K	T		
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm					Pct
27*:												
Chilcott-----	0-7	12-18	1.20-1.40	0.6-2.0	0.19-0.21	6.6-7.8	<2	Low-----	0.49	2	5	1-2
	7-17	35-60	1.35-1.50	0.06-0.2	0.14-0.21	7.4-7.8	<2	High-----	0.32			
	17-33	12-35	1.30-1.50	0.2-0.6	0.16-0.21	7.4-8.4	<2	Moderate	0.43			
	33-67	---	---	---	---	---	---	---	---			
Elijah-----	0-7	12-22	1.35-1.45	0.6-2.0	0.19-0.21	6.6-7.8	<2	Moderate	0.43	2	5	1-2
	7-21	26-35	1.40-1.50	0.2-0.6	0.19-0.21	6.6-8.4	<2	Moderate	0.43			
	21-30	12-18	1.50-1.60	0.6-2.0	0.16-0.21	7.9-9.0	<2	Low-----	0.43			
	30-41	---	---	---	---	---	---	---	---			
	41-60	0-7	1.60-1.70	2.0-6.0	0.05-0.09	7.4-8.4	<2	Low-----	0.15			
28*:												
Chilcott-----	0-7	27-35	1.40-1.50	0.2-0.6	0.14-0.16	6.6-7.8	<2	Moderate	0.24	2	4L	2-4
	7-17	43-55	1.20-1.40	0.06-0.2	0.15-0.17	7.4-8.4	<4	High-----	0.32			
	17-33	25-39	1.40-1.50	0.2-0.6	0.17-0.19	7.4-8.4	<4	Moderate	0.37			
	33-39	---	---	---	---	---	---	---	---			
	39-67	---	---	---	---	---	---	---	---			
Kunaton-----	0-4	15-25	1.50-1.60	0.6-2.0	0.18-0.22	6.6-7.8	<2	Moderate	0.49	1	6	1-2
	4-10	45-50	1.20-1.35	0.06-0.2	0.14-0.20	7.4-7.8	<2	High-----	0.32			
	10-15	20-35	1.50-1.60	0.2-0.6	0.14-0.22	7.4-8.4	<2	Moderate	0.43			
	15-31	---	---	---	---	---	---	---	---			
	31-35	---	---	---	---	---	---	---	---			
Chardoton-----	0-8	20-27	1.35-1.45	0.2-0.6	0.18-0.20	7.4-8.4	<4	Moderate	0.37	3	5	1-3
	8-41	35-55	1.40-1.50	0.06-0.2	0.15-0.18	7.4-9.0	<4	High-----	0.32			
	41-55	15-20	1.50-1.60	0.6-2.0	0.12-0.15	7.4-9.0	<4	Low-----	0.24			
	55-60	---	---	---	---	---	---	---	---			
29*:												
Chilcott-----	0-7	12-18	1.20-1.40	0.6-2.0	0.19-0.21	6.6-7.8	<2	Low-----	0.49	2	5	1-2
	7-17	35-60	1.35-1.50	0.06-0.2	0.14-0.21	7.4-7.8	<2	High-----	0.32			
	17-33	12-35	1.30-1.50	0.2-0.6	0.16-0.21	7.4-8.4	<2	Moderate	0.43			
	33-67	---	---	---	---	---	---	---	---			
Power-----	0-6	18-22	1.30-1.50	0.6-2.0	0.19-0.21	6.6-7.3	<2	Low-----	0.43	5	6	1-2
	6-19	27-35	1.35-1.55	0.2-0.6	0.16-0.18	7.4-8.4	<2	Moderate	0.43			
	19-60	15-20	1.35-1.55	0.6-2.0	0.16-0.18	7.9-8.4	<2	Low-----	0.37			
30*.												
Cinder land												
31-----												
Colthorp	0-3	12-20	1.30-1.40	0.6-2.0	0.14-0.17	6.6-7.8	<2	Low-----	0.28	1	6	1-3
	3-18	20-30	1.40-1.50	0.2-0.6	0.17-0.20	7.9-9.0	<2	Low-----	0.37			
	18-23	---	---	---	---	---	---	---	---			
	23-27	---	---	---	---	---	---	---	---			
32*:												
Colthorp-----	0-3	15-20	1.30-1.40	0.6-2.0	0.16-0.18	6.6-7.8	<2	Low-----	0.37	1	5	1-3
	3-18	20-30	1.40-1.50	0.2-0.6	0.16-0.18	7.4-9.0	<2	Low-----	0.43			
	18-23	---	---	---	---	---	---	---	---			
	23-27	---	---	---	---	---	---	---	---			
Chilcott-----	0-7	12-18	1.20-1.40	0.6-2.0	0.19-0.21	6.6-7.8	<2	Low-----	0.49	2	5	1-2
	7-17	35-60	1.35-1.50	0.06-0.2	0.14-0.21	7.4-7.8	<2	High-----	0.32			
	17-33	12-35	1.30-1.50	0.2-0.6	0.16-0.21	7.4-8.4	<2	Moderate	0.43			
	33-67	---	---	---	---	---	---	---	---			

See footnote at end of table.



TABLE 13.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter
									K	T		
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm					Pct
33*:												
Colthorp-----	0-3	12-20	1.30-1.40	0.6-2.0	0.14-0.17	6.6-7.8	<2	Low-----	0.28	1	6	1-3
	3-18	20-30	1.40-1.50	0.2-0.6	0.17-0.20	7.9-9.0	<2	Low-----	0.37			
	18-23	---	---	---	---	---	---	---	---			
	23-27	---	---	---	---	---	---	---	---			
Kunaton-----	0-4	12-22	1.50-1.60	0.6-2.0	0.19-0.21	7.4-7.8	<2	Low-----	0.49	1	5	1-3
	4-10	45-60	1.20-1.50	0.06-0.2	0.14-0.21	7.4-9.0	2-4	High-----	0.28			
	10-15	20-40	1.50-1.60	0.6-2.0	0.19-0.21	7.4-9.0	<2	Moderate	0.49			
	15-31	---	---	---	---	---	---	---	---			
	31-35	---	---	---	---	---	---	---	---			
34*:												
Colthorp-----	0-3	12-20	1.30-1.40	0.6-2.0	0.14-0.17	6.6-7.8	<2	Low-----	0.28	1	6	1-3
	3-18	20-30	1.40-1.50	0.2-0.6	0.17-0.20	7.9-9.0	<2	Low-----	0.37			
	18-23	---	---	---	---	---	---	---	---			
	23-27	---	---	---	---	---	---	---	---			
Kunaton-----	0-4	15-25	1.50-1.60	0.6-2.0	0.18-0.22	6.6-7.8	<2	Moderate	0.49	1	6	1-2
	4-10	45-50	1.20-1.35	0.06-0.2	0.14-0.20	7.4-7.8	<2	High-----	0.32			
	10-15	20-35	1.50-1.60	0.2-0.6	0.14-0.22	7.4-8.4	<2	Moderate	0.43			
	15-31	---	---	---	---	---	---	---	---			
	31-35	---	---	---	---	---	---	---	---			
Rubble land.												
35*:												
Colthorp-----	0-3	12-20	1.30-1.40	0.6-2.0	0.14-0.17	6.6-7.8	<2	Low-----	0.28	1	6	1-3
	3-18	20-30	1.40-1.50	0.2-0.6	0.17-0.20	7.9-9.0	<2	Low-----	0.37			
	18-23	---	---	---	---	---	---	---	---			
	23-27	---	---	---	---	---	---	---	---			
Minveno-----	0-8	10-15	1.20-1.40	0.6-2.0	0.15-0.18	6.6-7.8	<2	Low-----	0.37	1	5	1-2
	8-14	10-18	1.25-1.35	0.6-2.0	0.16-0.21	7.4-8.4	2-4	Low-----	0.43			
	14-21	---	---	---	---	---	---	---	---			
	21-25	---	---	---	---	---	---	---	---			
36*:												
Colthorp-----	0-3	12-20	1.30-1.40	0.6-2.0	0.13-0.15	6.6-7.8	<2	Low-----	0.24	1	8	1-3
	3-18	20-30	1.40-1.50	0.2-0.6	0.17-0.20	7.9-9.0	<2	Low-----	0.37			
	18-23	---	---	---	---	---	---	---	---			
	23-27	---	---	---	---	---	---	---	---			
Rock outcrop.												
37*:												
Coski-----	0-4	7-15	1.55-1.65	2.0-6.0	0.09-0.12	5.6-6.5	<2	Low-----	0.15	3	3	1-3
	4-44	7-15	1.55-1.65	2.0-6.0	0.08-0.11	5.6-6.5	<2	Low-----	0.15			
	44-48	---	---	---	---	---	---	---	---			
Broad Canyon----	0-9	5-12	1.45-1.50	2.0-6.0	0.07-0.09	5.6-6.5	<2	Low-----	0.10	4	5	1-3
	9-15	5-12	1.55-1.65	2.0-6.0	0.06-0.08	5.6-6.5	<2	Low-----	0.10			
	15-33	5-10	1.55-1.65	2.0-6.0	0.05-0.07	5.6-7.3	<2	Low-----	0.05			
	33-50	2-6	1.60-1.70	6.0-20	0.03-0.05	5.6-7.3	<2	Low-----	0.05			
	50-54	---	---	---	---	---	---	---	---			
38*:												
Cottle-----	0-5	15-25	1.40-1.55	0.6-2.0	0.08-0.11	7.4-8.4	<2	Low-----	0.17	1	8	1-2
	5-14	27-35	1.40-1.55	0.2-0.6	0.07-0.10	7.4-8.4	<2	Moderate	0.15			
	14-18	---	---	---	---	---	---	---	---			

See footnote at end of table.

TABLE 13.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter
									K	T		
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm					Pct
38*: Sidlake-----	0-4	18-22	1.40-1.50	0.6-2.0	0.15-0.18	6.6-7.3	<2	Low-----	0.32	2	5	1-2
	4-16	24-32	1.45-1.55	0.2-0.6	0.14-0.19	6.6-7.8	<2	Moderate	0.28			
	16-23	20-25	1.45-1.55	0.6-2.0	0.10-0.13	7.4-8.4	<2	Low-----	0.15			
	23-26	---	---	---	---	---	---	---	---			
	26-30	---	---	---	---	---	---	---	---			
39*: Cottle-----	0-4	15-22	1.40-1.55	0.6-2.0	0.11-0.13	7.4-8.4	<2	Low-----	0.20	1	8	1-2
	4-11	18-34	1.40-1.55	0.6-2.0	0.08-0.10	6.6-7.8	<2	Moderate	0.15			
	11-14	22-35	1.40-1.55	0.2-0.6	0.06-0.09	7.4-8.4	<2	Moderate	0.17			
	14-18	---	---	---	---	---	---	---	---			
Trevino-----	0-5	12-18	1.40-1.55	0.6-2.0	0.16-0.18	6.6-7.8	<2	Low-----	0.28	1	6	1-3
	5-12	12-18	1.50-1.60	0.6-2.0	0.16-0.21	6.6-8.4	<2	Low-----	0.28			
	12-18	10-18	1.50-1.60	0.6-2.0	0.12-0.16	6.6-8.4	<2	Low-----	0.32			
	18-22	---	---	---	---	---	---	---	---			
Rock outcrop.												
40*: Cottle-----	0-5	15-25	1.40-1.55	0.6-2.0	0.11-0.15	7.4-8.4	<2	Low-----	0.24	1	6	1-2
	5-14	27-35	1.40-1.55	0.2-0.6	0.07-0.10	7.4-8.4	<2	Moderate	0.15			
	14-18	---	---	---	---	---	---	---	---			
Willhill-----	0-3	18-25	1.20-1.40	0.6-2.0	0.12-0.15	6.6-7.8	<2	Low-----	0.20	2	5	1-2
	3-8	27-35	1.30-1.50	0.2-0.6	0.09-0.15	6.6-7.8	<2	Moderate	0.15			
	8-24	16-25	1.40-1.60	0.6-2.0	0.08-0.10	>7.8	<2	Low-----	0.10			
	24-28	---	---	---	---	---	---	---	---			
41, 42----- Cowgil	0-4	10-15	1.30-1.50	2.0-6.0	0.06-0.08	7.4-8.4	<2	Low-----	0.10	2	8	1-2
	4-21	20-35	1.35-1.55	0.2-0.6	0.06-0.10	7.4-8.4	<2	Low-----	0.05			
	21-60	2-10	1.50-1.65	>20	0.03-0.04	7.4-8.4	<2	Low-----	0.02			
43*: Cowgil-----	0-4	10-15	1.30-1.50	2.0-6.0	0.06-0.08	7.4-8.4	<2	Low-----	0.10	2	8	1-2
	4-21	20-35	1.35-1.55	0.2-0.6	0.06-0.10	7.4-8.4	<2	Low-----	0.05			
	21-60	2-10	1.50-1.65	>20	0.03-0.04	7.4-8.4	<2	Low-----	0.02			
Rubble land.												
Rock outcrop.												
44----- Davey	0-15	5-10	1.50-1.65	6.0-20	0.06-0.08	7.4-7.8	<2	Low-----	0.10	5	2	.5-1
	15-22	8-15	1.35-1.55	2.0-6.0	0.11-0.15	7.4-8.4	<2	Low-----	0.28			
	22-60	3-10	1.40-1.60	6.0-20	0.08-0.10	7.9-8.4	<2	Low-----	0.10			
45----- Davey	0-15	5-10	1.50-1.65	6.0-20	0.09-0.11	7.4-7.8	<2	Low-----	0.17	5	2	.5-1
	15-22	8-15	1.35-1.55	2.0-6.0	0.11-0.15	7.4-8.4	<2	Low-----	0.28			
	22-60	3-10	1.40-1.60	6.0-20	0.08-0.10	7.9-8.4	<2	Low-----	0.10			
46*: Davey-----	0-15	5-10	1.50-1.65	6.0-20	0.09-0.11	7.4-7.8	<2	Low-----	0.17	5	2	.5-1
	15-22	8-15	1.35-1.55	2.0-6.0	0.11-0.15	7.4-8.4	<2	Low-----	0.28			
	22-60	3-10	1.40-1.60	6.0-20	0.08-0.10	7.9-8.4	<2	Low-----	0.10			
Buko-----	0-7	4-18	1.45-1.50	2.0-6.0	0.10-0.14	7.4-8.4	<2	Low-----	0.20	2	3	1-2
	7-24	18-30	1.50-1.60	0.2-0.6	0.18-0.20	7.9-8.4	<2	Moderate	0.43			
	24-60	0-10	1.60-1.70	6.0-20	0.03-0.07	7.9-8.4	<2	Low-----	0.10			

See footnote at end of table.

TABLE 13.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Soil reaction	Salinity	Shrink- swell potential	Erosion factors		Wind erodi- bility group	Organic matter
									K	T		
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm					Pct
47*:												
Davey-----	0-15	5-10	1.50-1.65	6.0-20	0.09-0.11	7.4-7.8	<2	Low-----	0.17	5	2	.5-1
	15-22	8-15	1.35-1.55	2.0-6.0	0.11-0.15	7.4-8.4	<2	Low-----	0.28			
	22-60	3-10	1.40-1.60	6.0-20	0.08-0.10	7.9-8.4	<2	Low-----	0.10			
Mazuma-----	0-16	10-15	1.40-1.50	2.0-6.0	0.11-0.14	7.4-8.4	4-16	Low-----	0.24	5	3	.5-1
	16-40	10-15	1.45-1.55	2.0-6.0	0.10-0.13	7.9-9.0	4-16	Low-----	0.24			
	40-60	10-15	1.50-1.65	2.0-6.0	0.11-0.15	7.9-9.0	8-16	Low-----	0.24			
48*:												
Davey-----	0-15	5-10	1.50-1.65	6.0-20	0.09-0.11	7.4-7.8	<2	Low-----	0.17	5	2	.5-1
	15-22	8-15	1.35-1.55	2.0-6.0	0.11-0.15	7.4-8.4	<2	Low-----	0.28			
	22-60	3-10	1.40-1.60	6.0-20	0.08-0.10	7.9-8.4	<2	Low-----	0.10			
Quincy-----	0-3	1-6	1.45-1.60	6.0-20	0.08-0.11	6.1-8.4	<2	Low-----	0.17	5	1	.5-1
	3-60	1-7	1.50-1.70	6.0-20	0.08-0.12	6.6-8.4	<2	Low-----	0.28			
49*:												
Davey-----	0-15	5-10	1.50-1.65	6.0-20	0.09-0.11	7.4-7.8	<2	Low-----	0.17	5	2	.5-1
	15-22	8-15	1.35-1.55	2.0-6.0	0.11-0.15	7.4-8.4	<2	Low-----	0.28			
	22-60	3-10	1.40-1.60	6.0-20	0.08-0.10	7.9-8.4	<2	Low-----	0.10			
Vanderhoff-----	0-3	5-10	1.35-1.50	0.6-2.0	0.10-0.15	7.4-9.0	<4	Low-----	0.24	2	3	<1
	3-32	10-18	1.50-1.60	0.6-2.0	0.15-0.17	7.4-9.0	<4	Low-----	0.37			
	32-36	---	---	---	---	---	---	---	---			
50-----	0-5	8-18	1.45-1.50	2.0-6.0	0.13-0.15	7.4-8.4	<2	Low-----	0.24	3	3	.3-.7
Dors-----	5-26	8-18	1.40-1.60	2.0-6.0	0.13-0.17	7.9-9.0	<4	Low-----	0.32			
	26-60	4-10	1.55-1.65	>20	0.03-0.06	7.4-8.4	<4	Low-----	0.05			
51-----	0-5	8-18	1.50-1.60	2.0-6.0	0.10-0.12	7.4-8.4	<2	Low-----	0.15	3	4	.3-.7
Dors-----	5-26	8-18	1.40-1.60	2.0-6.0	0.13-0.17	7.9-9.0	<4	Low-----	0.32			
	26-60	4-10	1.55-1.65	>20	0.03-0.06	7.4-8.4	<4	Low-----	0.05			
52*:												
Dors-----	0-5	8-18	1.45-1.50	2.0-6.0	0.13-0.15	7.4-8.4	<2	Low-----	0.24	3	3	.3-.7
	5-26	8-18	1.40-1.60	2.0-6.0	0.13-0.17	7.9-9.0	<4	Low-----	0.32			
	26-60	4-10	1.55-1.65	>20	0.03-0.06	7.4-8.4	<4	Low-----	0.05			
Loray-----	0-13	10-15	1.55-1.65	2.0-6.0	0.07-0.09	7.4-8.4	<4	Low-----	0.15	1	5	<1
	13-60	0-8	1.50-1.65	2.0-20	0.03-0.05	7.9-9.0	<4	Low-----	0.05			
53*.												
Dune land												
54, 55-----	0-7	12-22	1.35-1.45	0.6-2.0	0.19-0.21	6.6-7.8	<2	Moderate	0.43	2	5	1-2
Elijah-----	7-21	26-35	1.40-1.50	0.2-0.6	0.19-0.21	6.6-8.4	<2	Moderate	0.43			
	21-30	12-18	1.50-1.60	0.6-2.0	0.16-0.21	7.9-9.0	<2	Low-----	0.43			
	30-41	---	---	---	---	---	---	---	---			
	41-60	0-7	1.60-1.70	2.0-6.0	0.05-0.09	7.4-8.4	<2	Low-----	0.15			
56*:												
Elijah-----	0-7	12-22	1.35-1.45	0.6-2.0	0.19-0.21	6.6-7.8	<2	Moderate	0.43	2	5	1-2
	7-21	26-35	1.40-1.50	0.2-0.6	0.19-0.21	6.6-8.4	<2	Moderate	0.43			
	21-30	12-18	1.50-1.60	0.6-2.0	0.16-0.21	7.9-9.0	<2	Low-----	0.43			
	30-41	---	---	---	---	---	---	---	---			
	41-60	0-7	1.60-1.70	2.0-6.0	0.05-0.09	7.4-8.4	<2	Low-----	0.15			

See footnote at end of table.

TABLE 13.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter
									K	T		
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm					Pct
56*: Purdam-----	0-6	20-25	1.50-1.60	0.6-2.0	0.19-0.21	6.6-7.3	<2	Low-----	0.43	2	6	1-2
	6-15	25-32	1.40-1.60	0.2-0.6	0.19-0.21	6.6-8.4	<2	Moderate	0.37			
	15-21	20-25	1.50-1.60	0.6-2.0	0.16-0.21	7.9-8.4	<2	Low-----	0.37			
	21-40	---	---	---	---	---	---	---	---			
	40-60	5-15	1.60-1.75	2.0-6.0	---	7.9-8.4	<2	Low-----	0.28			
57*: Elkcreek-----	0-4	15-25	1.50-1.60	0.6-2.0	0.12-0.15	6.1-7.3	<2	Low-----	0.20	2	7	1-3
	4-10	28-35	1.40-1.55	0.2-0.6	0.11-0.14	6.1-7.3	<2	Moderate	0.20			
	10-22	20-25	1.50-1.60	0.6-2.0	0.12-0.15	6.1-7.3	<2	Low-----	0.20			
	22-26	---	---	---	---	---	---	---	---			
Demast-----	0-15	18-25	---	0.6-2.0	0.11-0.18	5.6-7.3	<2	Low-----	0.24	3	6	2-4
	15-22	18-25	---	0.6-2.0	0.11-0.13	5.6-7.3	<2	Low-----	0.24			
	22-41	22-30	---	0.2-0.6	0.13-0.15	5.6-7.3	<2	Moderate	0.20			
	41-45	---	---	---	---	---	---	---	---			
58*: Elkcreek-----	0-4	15-25	1.50-1.60	0.6-2.0	0.12-0.15	6.1-7.3	<2	Low-----	0.20	2	7	1-3
	4-10	28-35	1.40-1.55	0.2-0.6	0.11-0.14	6.1-7.3	<2	Moderate	0.20			
	10-22	20-25	1.50-1.60	0.6-2.0	0.12-0.15	6.1-7.3	<2	Low-----	0.20			
	22-26	---	---	---	---	---	---	---	---			
Gaib-----	0-4	8-15	1.50-1.65	2.0-6.0	0.06-0.10	5.6-6.5	<2	Low-----	0.17	1	5	1-3
	4-12	15-25	1.60-1.70	0.6-2.0	0.07-0.10	5.6-6.5	<2	Low-----	0.28			
	12-16	---	---	---	---	---	---	---	---			
Simonton-----	0-4	10-20	1.25-1.40	0.6-2.0	0.16-0.18	5.6-7.3	<2	Low-----	0.28	5	6	1-2
	4-42	18-32	1.35-1.55	0.2-0.6	0.14-0.21	5.6-7.3	<2	Moderate	0.37			
	42-60	5-10	1.45-1.65	2.0-6.0	0.06-0.13	6.6-7.3	<2	Low-----	0.20			
59*: Farrot-----	0-10	10-15	1.65-1.75	2.0-6.0	0.10-0.13	6.6-7.8	<2	Low-----	0.15	2	3	1-3
	10-24	24-35	1.55-1.65	0.2-0.6	0.10-0.15	6.6-8.4	<2	Moderate	0.17			
	24-30	5-15	1.65-1.75	6.0-20	0.03-0.06	6.6-8.4	<2	Low-----	0.05			
	30-34	---	---	---	---	---	---	---	---			
Haw-----	0-9	10-20	1.25-1.35	0.6-2.0	0.16-0.21	6.1-7.8	<2	Low-----	0.43	4	5	2-4
	9-25	22-34	1.30-1.45	0.2-0.6	0.14-0.21	6.1-7.8	<2	Moderate	0.37			
	25-37	10-25	1.35-1.45	6.0-20	0.11-0.18	7.4-9.0	<2	Low-----	0.28			
	37-60	2-7	1.55-1.70	>20	0.03-0.08	7.4-9.0	<2	Low-----	0.15			
60----- Fluvaquents	0-5	28-35	1.45-1.55	0.2-0.6	0.18-0.20	7.4-8.4	<4	Moderate	0.32	5	4L	.5-1
	5-60	0-27	1.35-1.65	0.06-6.0	0.05-0.20	7.4-8.4	<4	Low-----	---			
61*: Gaib-----	0-4	8-15	1.50-1.65	2.0-6.0	0.06-0.10	5.6-6.5	<2	Low-----	0.17	1	5	1-3
	4-12	15-25	1.60-1.70	0.6-2.0	0.07-0.10	5.6-6.5	<2	Low-----	0.28			
	12-16	---	---	---	---	---	---	---	---			
Rubble land.												
62*: Gaib-----	0-4	8-15	1.50-1.65	2.0-6.0	0.06-0.10	5.6-6.5	<2	Low-----	0.17	1	5	1-3
	4-12	15-25	1.60-1.70	0.6-2.0	0.07-0.10	5.6-6.5	<2	Low-----	0.28			
	12-16	---	---	---	---	---	---	---	---			

See footnote at end of table.

TABLE 13.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter
									K	T		
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm					Pct
62*:												
Elkcreek-----	0-4	15-25	1.50-1.60	0.6-2.0	0.12-0.15	6.1-7.3	<2	Low-----	0.20	2	7	1-3
	4-10	28-35	1.40-1.55	0.2-0.6	0.11-0.14	6.1-7.3	<2	Moderate	0.20			
	10-22	20-25	1.50-1.60	0.6-2.0	0.12-0.15	6.1-7.3	<2	Low-----	0.20			
	22-26	---	---	---	---	---	---	---	---			
Rock outcrop.												
63*:												
Gaib-----	0-4	8-15	1.50-1.65	2.0-6.0	0.06-0.10	5.6-6.5	<2	Low-----	0.17	1	5	1-3
	4-12	15-25	1.60-1.70	0.6-2.0	0.07-0.10	5.6-6.5	<2	Low-----	0.28			
	12-16	---	---	---	---	---	---	---	---			
Elkcreek-----	0-4	15-25	1.50-1.60	0.6-2.0	0.12-0.15	6.1-7.3	<2	Low-----	0.20	2	7	1-3
	4-10	28-35	1.40-1.55	0.2-0.6	0.11-0.14	6.1-7.3	<2	Moderate	0.20			
	10-22	20-25	1.50-1.60	0.6-2.0	0.12-0.15	6.1-7.3	<2	Low-----	0.20			
	22-26	---	---	---	---	---	---	---	---			
Simonton-----	0-4	10-20	1.25-1.40	0.6-2.0	0.16-0.18	5.6-7.3	<2	Low-----	0.28	5	6	1-2
	4-42	18-32	1.35-1.55	0.2-0.6	0.14-0.21	5.6-7.3	<2	Moderate	0.37			
	42-60	5-10	1.45-1.65	2.0-6.0	0.06-0.13	6.6-7.3	<2	Low-----	0.20			
64*:												
Gaib-----	0-4	10-15	1.50-1.60	0.6-2.0	0.08-0.12	5.6-6.5	<2	Low-----	0.32	1	5	1-3
	4-12	15-25	1.60-1.70	0.6-2.0	0.07-0.10	5.6-6.5	<2	Low-----	0.28			
	12-16	---	---	---	---	---	---	---	---			
Simonton-----	0-4	10-20	1.25-1.40	0.6-2.0	0.11-0.14	5.6-6.0	<2	Low-----	0.24	5	6	1-2
	4-42	18-32	1.35-1.55	0.2-0.6	0.14-0.21	5.6-7.3	<2	Moderate	0.37			
	42-60	5-10	1.45-1.65	2.0-6.0	0.06-0.13	6.6-7.3	<2	Low-----	0.20			
Rock outcrop.												
65, 66-----												
Garbutt	0-5	12-18	1.20-1.40	0.6-2.0	0.19-0.21	7.9-9.0	<2	Low-----	0.49	5	4L	<1
	5-60	5-18	1.25-1.35	0.6-2.0	0.15-0.21	7.4-9.0	2-8	Low-----	0.43			
67*:												
Garbutt-----	0-5	12-18	1.20-1.40	0.6-2.0	0.19-0.21	7.9-9.0	<2	Low-----	0.49	5	4L	<1
	5-60	5-18	1.25-1.35	0.6-2.0	0.15-0.21	7.4-9.0	2-8	Low-----	0.43			
Weso-----	0-5	7-18	1.30-1.50	0.6-2.0	0.16-0.19	7.9-9.0	<4	Low-----	0.55	5	5	<.5
	5-30	5-20	1.40-1.55	0.6-2.0	0.13-0.18	7.9-9.0	<8	Low-----	0.49			
	30-60	4-12	1.45-1.65	2.0-6.0	0.11-0.13	7.9-9.0	>4	Low-----	0.28			
68*:												
Garbutt-----	0-5	12-18	1.20-1.40	0.6-2.0	0.19-0.21	7.9-9.0	<2	Low-----	0.49	5	4L	<1
	5-60	5-18	1.25-1.35	0.6-2.0	0.15-0.21	7.4-9.0	2-8	Low-----	0.43			
Weso-----	0-5	7-18	1.30-1.50	0.6-2.0	0.16-0.19	7.9-9.0	<4	Low-----	0.55	5	5	<.5
	5-30	5-20	1.40-1.55	0.6-2.0	0.13-0.18	7.9-9.0	<8	Low-----	0.49			
	30-60	4-12	1.45-1.65	2.0-6.0	0.11-0.13	7.9-9.0	>4	Low-----	0.28			
Trevino-----	0-5	12-18	1.40-1.55	0.6-2.0	0.16-0.18	6.6-7.8	<2	Low-----	0.28	1	6	1-3
	5-12	12-18	1.50-1.60	0.6-2.0	0.16-0.21	6.6-8.4	<2	Low-----	0.28			
	12-18	10-18	1.50-1.60	0.6-2.0	0.12-0.16	6.6-8.4	<2	Low-----	0.32			
	18-22	---	---	---	---	---	---	---	---			
69*:												
Garbutt-----	0-5	12-18	1.20-1.40	0.6-2.0	0.19-0.21	7.9-9.0	<2	Low-----	0.49	5	4L	<1
	5-60	5-18	1.25-1.35	0.6-2.0	0.15-0.21	7.4-9.0	2-8	Low-----	0.43			

See footnote at end of table.

TABLE 13.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Soil reaction	Salinity	Shrink- swell potential	Erosion factors		Wind erodi- bility group	Organic matter
									K	T		
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm					Pct
69*: Trevino-----	0-5	12-18	1.40-1.55	0.6-2.0	0.16-0.18	6.6-7.8	<2	Low-----	0.28	1	6	1-3
	5-12	12-18	1.50-1.60	0.6-2.0	0.16-0.21	6.6-8.4	<2	Low-----	0.28			
	12-18	10-18	1.50-1.60	0.6-2.0	0.12-0.16	6.6-8.4	<2	Low-----	0.32			
	18-22	---	---	---	---	---	---	---	---			
70----- Grandview	0-13	15-25	1.20-1.30	0.2-0.6	0.18-0.20	7.9-9.0	4-16	Low-----	0.43	5	4L	.5-1
	13-35	28-35	1.25-1.35	0.06-0.2	0.19-0.21	7.9-9.0	4-16	Moderate	0.37			
	35-60	15-25	1.30-1.40	0.6-2.0	0.16-0.18	7.9-9.0	4-16	Low-----	0.49			
71*: Grandview-----	0-11	20-25	1.20-1.30	0.6-2.0	0.19-0.21	7.4-8.4	<8	Low-----	0.43	5	4L	<.5
	11-60	24-35	1.25-1.35	0.2-0.6	0.17-0.20	7.9-9.0	8-16	Moderate	0.37			
Garbutt-----	0-5	12-18	1.20-1.40	0.6-2.0	0.19-0.21	7.9-9.0	<2	Low-----	0.49	5	4L	<1
	5-60	5-18	1.25-1.35	0.6-2.0	0.15-0.21	7.4-9.0	2-8	Low-----	0.43			
72*: Graylock-----	0-7	0-10	1.50-1.70	6.0-20	0.06-0.09	4.5-6.0	<2	Low-----	0.10	3	8	1-3
	7-26	0-5	1.50-1.70	>20	0.05-0.07	4.5-6.0	<2	Low-----	0.10			
	26-58	0-5	1.50-1.70	>20	0.04-0.07	4.5-5.0	<2	Low-----	0.10			
	58-62	---	---	---	---	---	---	---	---			
Broad Canyon----	0-9	5-12	1.45-1.50	2.0-6.0	0.07-0.09	5.6-6.5	<2	Low-----	0.10	4	5	1-3
	9-15	5-12	1.55-1.65	2.0-6.0	0.06-0.08	5.6-6.5	<2	Low-----	0.10			
	15-33	5-10	1.55-1.65	2.0-6.0	0.05-0.07	5.6-7.3	<2	Low-----	0.05			
	33-50	2-6	1.60-1.70	6.0-20	0.03-0.05	5.6-7.3	<2	Low-----	0.05			
	50-54	---	---	---	---	---	---	---	---			
73----- Greenleaf	0-5	12-20	1.25-1.40	0.6-2.0	0.17-0.19	6.6-8.4	<2	Low-----	0.37	5	3	1-2
	5-60	22-30	1.20-1.40	0.2-0.6	0.17-0.20	7.4-8.4	<2	Moderate	0.49			
74*: Greenleaf-----	0-5	16-22	1.20-1.40	0.6-2.0	0.17-0.20	6.6-8.4	<2	Low-----	0.49	5	4L	1-2
	5-60	22-30	1.20-1.40	0.2-0.6	0.17-0.20	7.4-8.4	<2	Moderate	0.49			
Shano-----	0-5	5-18	1.40-1.50	0.6-2.0	0.18-0.20	7.4-8.4	<2	Low-----	0.43	5	5	1-3
	5-42	5-12	1.50-1.60	0.6-2.0	0.17-0.20	7.4-9.0	<2	Low-----	0.43			
	42-60	5-10	1.55-1.65	2.0-6.0	0.11-0.17	7.4-9.0	<2	Low-----	0.24			
75*: Haplaquolls-----	0-12	15-25	---	0.6-2.0	0.17-0.20	6.1-7.8	<2	Low-----	0.43	5	6	2-6
	12-60	---	---	---	---	---	<2	---	---			
Xerofluvents----	0-6	5-15	---	2.0-6.0	0.10-0.14	6.1-7.8	<2	Low-----	0.32	5	3	.5-2
	6-60	---	---	---	---	---	<2	---	---			
76*: Harahill-----	0-4	18-27	1.35-1.45	0.6-2.0	0.16-0.18	5.6-6.5	<2	Low-----	0.24	2	6	4-5
	4-16	20-30	1.40-1.55	0.6-2.0	0.16-0.21	6.1-6.5	<2	Moderate	0.37			
	16-28	18-27	1.50-1.60	0.6-2.0	0.12-0.14	6.1-6.5	<2	Low-----	0.17			
	28-32	---	---	---	---	---	---	---	---			
Willho-----	0-6	20-27	1.50-1.60	0.2-0.6	0.17-0.18	5.6-7.3	<2	Moderate	0.37	2	6	1-2
	6-13	25-35	1.45-1.60	0.06-0.2	0.14-0.18	5.6-7.3	<2	Moderate	0.32			
	13-27	37-55	1.25-1.45	<0.06	0.15-0.18	5.6-7.3	<2	High-----	0.28			
	27-47	---	---	---	---	---	---	---	---			
	47-74	20-30	1.50-1.60	0.2-0.6	0.16-0.18	6.6-7.3	<2	Moderate	0.43			

See footnote at end of table.

TABLE 13.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter
									K	T		
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm					Pct
77*:												
Haw-----	0-9	10-20	1.25-1.35	0.6-2.0	0.16-0.21	6.1-7.8	<2	Low-----	0.43	4	5	2-4
	9-25	22-34	1.30-1.45	0.2-0.6	0.14-0.21	6.1-7.8	<2	Moderate	0.37			
	25-37	10-25	1.35-1.45	6.0-20	0.11-0.18	7.4-9.0	<2	Low-----	0.28			
	37-60	2-7	1.55-1.70	>20	0.03-0.08	7.4-9.0	<2	Low-----	0.15			
Farrot-----	0-10	10-15	1.65-1.75	2.0-6.0	0.10-0.13	6.6-7.8	<2	Low-----	0.15	2	3	1-3
	10-24	24-35	1.55-1.65	0.2-0.6	0.10-0.15	6.6-8.4	<2	Moderate	0.17			
	24-30	5-15	1.65-1.75	6.0-20	0.03-0.06	6.6-8.4	<2	Low-----	0.05			
	30-34	---	---	---	---	---	---	---	---			
78*:												
Haw-----	0-9	10-20	1.25-1.35	0.6-2.0	0.16-0.21	6.1-7.8	<2	Low-----	0.43	4	5	2-4
	9-25	22-34	1.30-1.45	0.2-0.6	0.14-0.21	6.1-7.8	<2	Moderate	0.37			
	25-37	10-25	1.35-1.45	6.0-20	0.11-0.18	7.4-9.0	<2	Low-----	0.28			
	37-60	2-7	1.55-1.70	>20	0.03-0.08	7.4-9.0	<2	Low-----	0.15			
Lankbush-----	0-8	12-18	1.45-1.60	2.0-6.0	0.11-0.13	6.6-7.3	<2	Low-----	0.28	5	3	1-2
	8-12	12-18	1.45-1.60	2.0-6.0	0.11-0.13	7.4-8.4	<2	Low-----	0.28			
	12-50	20-30	1.45-1.60	0.2-0.6	0.16-0.20	7.9-8.4	<2	Moderate	0.37			
	50-60	0-8	1.55-1.65	2.0-6.0	0.04-0.08	7.9-9.0	<2	Low-----	0.28			
79-----	0-6	5-10	1.65-1.70	>20	0.06-0.08	7.4-8.4	<4	Low-----	0.05	5	2	.5-1
Hawsley	6-60	2-8	1.65-1.70	>20	0.05-0.08	7.4-8.4	<8	Low-----	0.05			
80*:												
Hotcreek-----	0-2	12-18	---	2.0-6.0	0.06-0.07	7.4-8.4	<2	Low-----	0.05	1	8	1-2
	2-8	24-34	---	0.2-0.6	0.08-0.12	7.9-9.0	<2	Low-----	0.15			
	8-14	---	---	---	---	---	---	---	---			
	14-18	---	---	---	---	---	---	---	---			
Troughs-----	0-4	15-22	1.50-1.60	0.6-2.0	0.12-0.14	7.4-8.4	<2	Low-----	0.24	1	7	1-2
	4-11	17-24	1.50-1.60	0.6-2.0	0.12-0.14	7.4-8.4	<2	Low-----	0.24			
	11-16	27-35	1.55-1.65	0.2-0.6	0.09-0.12	7.4-8.4	<2	Moderate	0.15			
	16-21	---	---	---	---	---	---	---	---			
	21-36	16-25	1.55-1.70	0.6-2.0	0.05-0.08	7.4-8.4	<2	Low-----	0.10			
	36-40	---	---	---	---	---	---	---	---			
81-----	0-14	27-40	---	0.2-0.6	0.19-0.21	6.1-6.5	<2	Moderate	0.37	2	4	3-5
Houk	14-35	35-60	---	0.06-0.2	0.14-0.21	6.6-8.4	<2	High-----	0.37			
	35-60	27-40	---	0.2-0.6	0.19-0.21	6.6-8.4	<2	Moderate	0.37			
82-----	0-10	20-25	1.40-1.55	0.6-2.0	0.13-0.15	6.6-7.8	<2	Low-----	0.28	2	6	1-3
Immiant	10-20	25-35	1.40-1.55	0.2-0.6	0.13-0.16	6.6-7.8	<2	Moderate	0.32			
	20-28	25-35	1.45-1.55	0.2-0.6	0.12-0.14	6.6-7.8	<2	Moderate	0.24			
	28-32	---	---	---	---	---	---	---	---			
83*:												
Immiant-----	0-10	20-25	1.40-1.55	0.6-2.0	0.13-0.15	6.6-7.8	<2	Low-----	0.28	2	6	1-3
	10-20	25-35	1.40-1.55	0.2-0.6	0.13-0.16	6.6-7.8	<2	Moderate	0.32			
	20-28	25-35	1.45-1.55	0.2-0.6	0.12-0.14	6.6-7.8	<2	Moderate	0.24			
	28-32	---	---	---	---	---	---	---	---			
Ruckles-----	0-6	30-40	1.20-1.40	0.2-0.6	0.10-0.13	6.6-7.8	<2	Moderate	0.15	1	6	1-2
	6-11	50-60	1.35-1.50	0.06-0.2	0.07-0.11	6.6-7.8	<2	High-----	0.10			
	11-15	---	---	---	---	---	---	---	---			
Rock outcrop.												

See footnote at end of table.

TABLE 13.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Soil reaction	Salinity	Shrink- swell potential	Erosion factors		Wind erodi- bility group	Organic matter
									K	T		
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm					Pct
84----- Jacquith	0-10 10-30 30-60	3-10 3-10 ---	1.60-1.70 1.60-1.70 ---	6.0-20 6.0-20 ---	0.07-0.11 0.05-0.11 ---	6.6-8.4 6.6-8.4 ---	<2 <2 ---	Low----- Low----- ---	0.15 0.15 ---	2 2 ---	2	.5-1
85----- Jacquith	0-4 4-30 30-60	3-10 3-10 ---	1.60-1.70 1.60-1.70 ---	6.0-20 6.0-20 ---	0.07-0.11 0.05-0.11 ---	6.6-8.4 6.6-8.4 ---	<2 <2 ---	Low----- Low----- ---	0.15 0.15 ---	2 2 ---	2	.5-1
86*: Jacquith-----	0-10 10-30 30-60	3-10 3-10 ---	1.60-1.70 1.60-1.70 ---	6.0-20 6.0-20 ---	0.07-0.11 0.05-0.11 ---	6.6-8.4 6.6-8.4 ---	<2 <2 ---	Low----- Low----- ---	0.15 0.15 ---	2 2 ---	2	.5-1
Quincy-----	0-3 3-60	1-6 1-7	1.45-1.65 1.50-1.70	6.0-20 6.0-20	0.09-0.12 0.08-0.12	6.1-8.4 6.6-8.4	<2 <2	Low----- Low-----	0.32 0.28	5	2	.5-1
87*: Karcac-----	0-4 4-31 31-35	40-60 40-60 ---	1.10-1.35 1.10-1.35 ---	0.06-0.2 0.06-0.2 ---	0.08-0.10 0.12-0.15 ---	6.6-7.3 6.6-7.8 ---	<2 <2 ---	High----- High----- ---	0.10 0.28 ---	2	8	<1
Day-----	0-6 6-40 40-60	45-55 60-70 35-45	1.30-1.40 1.20-1.30 1.35-1.45	0.06-0.2 <0.06 0.06-0.2	0.14-0.16 0.14-0.16 0.16-0.18	6.6-7.8 6.6-7.8 7.4-8.4	<2 <2 <2	High----- High----- High-----	0.24 0.24 0.28	5	6	1-2
Rock outcrop.												
88----- Kunaton	0-4 4-10 10-15 15-31 31-35	12-22 45-60 20-40 --- ---	1.50-1.60 1.20-1.50 1.50-1.60 --- ---	0.6-2.0 0.06-0.2 0.6-2.0 --- ---	0.19-0.21 0.14-0.21 0.19-0.21 --- ---	7.4-7.8 7.4-9.0 7.4-9.0 --- ---	<2 2-4 <2 --- ---	Low----- High----- Moderate --- ---	0.49 0.28 0.49 --- ---	1	5	1-3
89*: Kunaton-----	0-4 4-10 10-15 15-31 31-35	12-22 45-60 20-40 --- ---	1.50-1.60 1.20-1.50 1.50-1.60 --- ---	0.6-2.0 0.06-0.2 0.6-2.0 --- ---	0.19-0.21 0.14-0.21 0.19-0.21 --- ---	7.4-7.8 7.4-9.0 7.4-9.0 --- ---	<2 2-4 <2 --- ---	Low----- High----- Moderate --- ---	0.49 0.28 0.49 --- ---	1	5	1-3
Chilcott-----	0-7 7-17 17-33 33-67	12-18 35-60 12-35 ---	1.20-1.40 1.35-1.50 1.30-1.50 ---	0.6-2.0 0.06-0.2 0.2-0.6 ---	0.19-0.21 0.14-0.21 0.16-0.21 ---	6.6-7.8 7.4-7.8 7.4-8.4 ---	<2 <2 <2 ---	Low----- High----- Moderate ---	0.49 0.32 0.43 ---	2	5	1-2
90----- Lankbush	0-8 8-12 12-50 50-60	12-18 12-18 20-30 0-8	1.45-1.60 1.45-1.60 1.45-1.60 1.55-1.65	2.0-6.0 2.0-6.0 0.2-0.6 2.0-6.0	0.11-0.13 0.11-0.13 0.16-0.20 0.04-0.08	6.6-7.3 7.4-8.4 7.9-8.4 7.9-9.0	<2 <2 <2 <2	Low----- Low----- Moderate Low-----	0.28 0.28 0.37 0.28	5	3	1-2
91*: Lankbush-----	0-8 8-12 12-50 50-60	12-18 12-18 20-30 0-8	1.45-1.60 1.45-1.60 1.45-1.60 1.55-1.65	2.0-6.0 2.0-6.0 0.2-0.6 2.0-6.0	0.11-0.13 0.11-0.13 0.16-0.20 0.04-0.08	6.6-7.3 7.4-8.4 7.9-8.4 7.9-9.0	<2 <2 <2 <2	Low----- Low----- Moderate Low-----	0.28 0.28 0.37 0.28	5	3	1-2
Lanktree-----	0-3 3-35 35-43 43-60	15-20 35-45 15-20 5-10	1.50-1.60 1.45-1.60 1.50-1.70 1.60-1.70	0.6-2.0 0.06-0.2 0.6-2.0 6.0-20	0.16-0.21 0.14-0.21 0.11-0.21 0.04-0.08	6.1-7.8 6.6-7.8 7.4-9.0 7.4-9.0	<2 <2 <2 <2	Low----- High----- Low----- Low-----	0.43 0.28 0.43 0.15	2	5	1-2

See footnote at end of table.



TABLE 13.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Soil reaction	Salinity	Shrink- swell potential	Erosion factors		Wind erodi- bility group	Organic matter
									K	T		
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm					Pct
92*: Lankbush-----	0-8	12-18	1.45-1.60	2.0-6.0	0.11-0.13	6.6-7.3	<2	Low-----	0.28	5	3	1-2
	8-12	12-18	1.45-1.60	2.0-6.0	0.11-0.13	7.4-8.4	<2	Low-----	0.28			
	12-50	20-30	1.45-1.60	0.2-0.6	0.16-0.20	7.9-8.4	<2	Moderate	0.37			
	50-60	0-8	1.55-1.65	2.0-6.0	0.04-0.08	7.9-9.0	<2	Low-----	0.28			
Jenness-----	0-6	10-15	1.60-1.65	2.0-6.0	0.10-0.13	6.6-7.8	<2	Low-----	0.24	3	3	1-2
	6-12	10-15	1.50-1.60	0.6-2.0	0.11-0.17	7.4-8.4	<2	Low-----	0.49			
	12-36	5-15	1.60-1.70	2.0-6.0	0.10-0.13	7.4-8.4	<2	Low-----	0.28			
	36-60	2-10	1.65-1.70	>20	0.06-0.09	7.4-8.4	<2	Low-----	0.10			
93----- Lanktree	0-3	15-20	1.50-1.60	0.6-2.0	0.16-0.21	6.1-7.8	<2	Low-----	0.43	2	5	1-2
	3-35	35-45	1.45-1.60	0.06-0.2	0.14-0.21	6.6-7.8	<2	High-----	0.28			
	35-43	15-20	1.50-1.70	0.6-2.0	0.11-0.21	7.4-9.0	<2	Low-----	0.43			
	43-60	5-10	1.60-1.70	6.0-20	0.04-0.08	7.4-9.0	<2	Low-----	0.15			
94*: Lanktree-----	0-3	15-20	1.50-1.60	0.6-2.0	0.16-0.21	6.1-7.8	<2	Low-----	0.43	2	5	1-2
	3-35	35-45	1.45-1.60	0.06-0.2	0.14-0.21	6.6-7.8	<2	High-----	0.28			
	35-43	15-20	1.50-1.70	0.6-2.0	0.11-0.21	7.4-9.0	<2	Low-----	0.43			
	43-60	5-10	1.60-1.70	6.0-20	0.04-0.08	7.4-9.0	<2	Low-----	0.15			
Chilcott-----	0-7	12-18	1.20-1.40	0.6-2.0	0.19-0.21	6.6-7.8	<2	Low-----	0.49	2	5	1-2
	7-17	35-60	1.35-1.50	0.06-0.2	0.14-0.21	7.4-7.8	<2	High-----	0.32			
	17-33	12-35	1.30-1.50	0.2-0.6	0.16-0.21	7.4-8.4	<2	Moderate	0.43			
	33-67	---	---	---	---	---	---	---	---			
95----- Letha	0-8	5-15	1.55-1.65	0.6-2.0	0.10-0.15	7.9-9.0	<4	Low-----	0.24	5	3	1-3
	8-48	5-15	1.30-1.40	2.0-6.0	0.10-0.12	7.9-9.0	4-8	Low-----	0.17			
	48-60	2-10	1.60-1.70	6.0-20	0.08-0.10	7.9-9.0	4-8	Low-----	0.10			
96----- Letha	0-10	8-15	1.50-1.65	0.6-2.0	0.11-0.14	7.9-9.0	<4	Low-----	0.43	5	4L	2-4
	10-60	5-15	1.45-1.55	0.6-2.0	0.10-0.13	7.9-9.0	4-16	Low-----	0.43			
97*: Letha-----	0-10	8-15	1.50-1.65	0.6-2.0	0.11-0.14	7.9-9.0	<4	Low-----	0.43	5	4L	2-4
	10-60	5-15	1.45-1.55	0.6-2.0	0.10-0.13	7.9-9.0	4-16	Low-----	0.43			
Baldock-----	0-7	12-22	1.35-1.50	0.6-2.0	0.09-0.14	7.9-9.0	8-16	Low-----	0.37	5	4L	1-2
	7-60	18-27	1.40-1.60	0.6-2.0	0.09-0.14	7.9-9.0	8-16	Low-----	0.32			
98----- Loray	0-13	10-15	1.55-1.65	2.0-6.0	0.07-0.09	7.4-8.4	<4	Low-----	0.15	1	5	<1
	13-60	0-8	1.50-1.65	2.0-20	0.03-0.05	7.9-9.0	<4	Low-----	0.05			
99*: Loray-----	0-13	10-15	1.55-1.65	2.0-6.0	0.07-0.09	7.4-8.4	<4	Low-----	0.15	1	5	<1
	13-60	0-8	1.50-1.65	2.0-20	0.03-0.05	7.9-9.0	<4	Low-----	0.05			
Dors-----	0-5	8-18	1.45-1.50	2.0-6.0	0.13-0.15	7.4-8.4	<2	Low-----	0.24	3	3	.3-.7
	5-26	8-18	1.40-1.60	2.0-6.0	0.13-0.17	7.9-9.0	<4	Low-----	0.32			
	26-60	4-10	1.55-1.65	>20	0.03-0.06	7.4-8.4	<4	Low-----	0.05			
100----- Mazuma	0-16	10-15	1.40-1.50	2.0-6.0	0.11-0.14	7.4-8.4	4-16	Low-----	0.24	5	3	.5-1
	16-40	10-15	1.45-1.55	2.0-6.0	0.10-0.13	7.9-9.0	4-16	Low-----	0.24			
	40-60	10-15	1.50-1.65	2.0-6.0	0.11-0.15	7.9-9.0	8-16	Low-----	0.24			
101*: Mazuma-----	0-16	10-15	1.40-1.50	2.0-6.0	0.11-0.14	7.4-8.4	4-16	Low-----	0.24	5	3	.5-1
	16-40	10-15	1.45-1.55	2.0-6.0	0.10-0.13	7.9-9.0	4-16	Low-----	0.24			
	40-60	10-15	1.50-1.65	2.0-6.0	0.11-0.15	7.9-9.0	8-16	Low-----	0.24			

See footnote at end of table.

TABLE 13.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Soil reaction	Salinity	Shrink- swell potential	Erosion factors		Wind erodi- bility group	Organic matter
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm		K	T		Pct
101*: Hawsley-----	0-6	5-10	1.65-1.70	>20	0.06-0.08	7.4-8.4	<4	Low-----	0.05	5	2	.5-1
	6-60	2-8	1.65-1.70	>20	0.05-0.08	7.4-8.4	<8	Low-----	0.05			
102----- McKeeth	0-3	20-26	1.40-1.50	0.6-2.0	0.12-0.14	7.4-8.4	<4	Moderate	0.17	3	6	<.5
	3-13	25-35	1.40-1.50	0.2-0.6	0.12-0.15	7.9-9.0	<8	Moderate	0.17			
	13-24	7-15	1.55-1.65	0.2-0.6	0.07-0.09	7.9-9.0	<8	Low-----	0.10			
	24-60	2-8	1.60-1.70	6.0-20	0.02-0.05	7.9-9.0	<8	Low-----	0.02			
103*, 104*: Minidoka-----	0-4	10-18	1.30-1.40	0.6-2.0	0.19-0.21	7.4-8.4	<2	Low-----	0.49	2	4L	1-3
	4-27	10-18	1.30-1.40	0.6-2.0	0.19-0.21	7.4-8.4	<2	Low-----	0.49			
	27-43	---	---	---	---	---	---	---	---			
	43-60	10-18	1.30-1.40	0.6-2.0	0.19-0.21	7.4-8.4	<2	Low-----	0.49			
Minveno-----	0-8	10-15	1.20-1.40	0.6-2.0	0.19-0.21	6.6-7.8	<2	Low-----	0.43	1	4L	1-2
	8-14	10-18	1.25-1.35	0.6-2.0	0.16-0.21	7.4-8.4	2-4	Low-----	0.43			
	14-21	---	---	---	---	---	---	---	---			
	21-25	---	---	---	---	---	---	---	---			
105, 106----- Minveno	0-8	10-15	1.20-1.40	0.6-2.0	0.19-0.21	6.6-7.8	<2	Low-----	0.43	1	4L	1-2
	8-14	10-18	1.25-1.35	0.6-2.0	0.16-0.21	7.4-8.4	2-4	Low-----	0.43			
	14-21	---	---	---	---	---	---	---	---			
	21-25	---	---	---	---	---	---	---	---			
107*: Minveno-----	0-8	10-15	1.20-1.40	0.6-2.0	0.15-0.18	6.6-7.8	<2	Low-----	0.37	1	5	1-2
	8-14	10-18	1.25-1.35	0.6-2.0	0.16-0.21	7.4-8.4	2-4	Low-----	0.43			
	14-21	---	---	---	---	---	---	---	---			
	21-25	---	---	---	---	---	---	---	---			
Minidoka-----	0-4	10-18	1.30-1.40	0.6-2.0	0.18-0.21	7.4-8.4	<2	Low-----	0.43	2	6	1-3
	4-27	10-18	1.30-1.40	0.6-2.0	0.19-0.21	7.4-8.4	<2	Low-----	0.49			
	27-43	---	---	---	---	---	---	---	---			
	43-60	10-18	1.30-1.40	0.6-2.0	0.19-0.21	7.4-8.4	<2	Low-----	0.49			
108*: Monroe-----	0-8	10-20	1.20-1.30	0.6-2.0	0.11-0.14	7.4-8.4	<2	Low-----	0.24	5	3	2-5
	8-36	18-27	1.25-1.30	0.6-2.0	0.16-0.18	7.4-8.4	<2	Moderate	0.37			
	36-60	10-18	1.30-1.45	2.0-6.0	0.10-0.12	7.4-8.4	<2	Low-----	0.24			
Jenness-----	0-6	12-20	1.50-1.60	0.6-2.0	0.13-0.19	6.6-7.8	<2	Low-----	0.37	3	5	1-2
	6-12	10-15	1.50-1.60	0.6-2.0	0.11-0.17	7.4-8.4	<2	Low-----	0.49			
	12-36	5-15	1.60-1.70	2.0-6.0	0.10-0.13	7.4-8.4	<2	Low-----	0.28			
	36-60	2-10	1.65-1.70	>20	0.06-0.09	7.4-8.4	<2	Low-----	0.10			
109*: Monroe-----	0-8	10-20	1.20-1.30	0.6-2.0	0.11-0.14	7.4-8.4	<2	Low-----	0.24	5	3	2-5
	8-36	18-27	1.25-1.30	0.6-2.0	0.16-0.18	7.4-8.4	<2	Moderate	0.37			
	36-60	10-18	1.30-1.45	2.0-6.0	0.10-0.12	7.4-8.4	<2	Low-----	0.24			
Goose Creek----	0-6	12-20	1.20-1.35	0.6-2.0	0.16-0.21	6.6-8.4	<2	Low-----	0.43	5	5	3-5
	6-60	25-35	1.30-1.40	0.06-0.2	0.16-0.21	6.6-8.4	<2	Moderate	0.24			
110*: Moran-----	0-7	12-20	1.50-1.55	2.0-6.0	0.07-0.09	5.1-6.0	<2	Low-----	0.10	3	5	2-4
	7-20	14-23	1.55-1.60	2.0-6.0	0.06-0.09	4.5-5.5	<2	Low-----	0.10			
	20-41	6-15	1.55-1.60	2.0-6.0	0.05-0.07	4.5-5.5	<2	Low-----	0.05			
	41-45	---	---	---	---	---	---	---	---			

See footnote at end of table.

TABLE 13.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter
									K	T		
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm					Pct
110*: Teewinot-----	0-7	5-15	1.20-1.40	2.0-6.0	0.04-0.06	5.6-6.0	<2	Low-----	0.02	1	8	1-3
	7-14	5-15	1.25-1.45	2.0-6.0	0.04-0.06	5.6-6.0	<2	Low-----	0.02			
	14-18	---	---	---	---	---	---	---	---			
Coski-----	0-11	5-12	1.45-1.50	2.0-6.0	0.08-0.09	5.6-6.5	<2	Low-----	0.10	3	5	1-3
	11-42	7-15	1.55-1.65	2.0-6.0	0.08-0.11	5.6-6.5	<2	Low-----	0.15			
	42-46	---	---	---	---	---	---	---	---			
111----- Oland	0-17	18-24	1.50-1.70	0.6-2.0	0.13-0.16	6.1-7.3	<2	Low-----	0.20	3	6	4-6
	17-23	18-24	1.50-1.70	0.6-2.0	0.13-0.15	6.1-7.3	<2	Low-----	0.15			
	23-60	10-18	1.50-1.70	2.0-6.0	0.05-0.08	6.1-7.3	<2	Low-----	0.05			
112----- Ornea	0-5	16-24	1.45-1.55	0.6-2.0	0.12-0.14	7.9-9.0	<2	Low-----	0.20	2	6	.5-1
	5-12	24-32	1.50-1.60	0.2-0.6	0.12-0.15	7.9-9.0	<2	Moderate	0.20			
	12-60	2-8	1.60-1.70	>20	0.02-0.04	7.9-9.0	<2	Low-----	0.02			
113*: Owse1-----	0-4	10-20	1.45-1.55	0.6-2.0	0.15-0.17	6.6-7.8	<2	Low-----	0.49	5	5	1-3
	4-14	28-35	1.45-1.55	0.2-0.6	0.15-0.18	6.6-7.8	<2	Moderate	0.43			
	14-18	20-27	1.45-1.55	0.2-0.6	0.14-0.16	6.6-7.8	<2	Low-----	0.49			
	18-36	10-20	1.45-1.55	0.2-0.6	0.14-0.16	7.9-9.0	<4	Low-----	0.49			
	36-60	10-15	1.50-1.60	2.0-6.0	0.10-0.12	7.9-9.0	<4	Low-----	0.43			
Purdam-----	0-6	20-25	1.50-1.60	0.6-2.0	0.19-0.21	6.6-7.3	<2	Low-----	0.43	2	6	1-2
	6-15	25-32	1.40-1.60	0.2-0.6	0.19-0.21	6.6-8.4	<2	Moderate	0.37			
	15-21	20-25	1.50-1.60	0.6-2.0	0.16-0.21	7.9-8.4	<2	Low-----	0.37			
	21-40	---	---	---	---	---	---	---	---			
	40-60	5-15	1.60-1.75	2.0-6.0	---	7.9-8.4	<2	Low-----	0.28			
114*: Perazzo-----	0-4	12-18	1.40-1.55	2.0-6.0	0.05-0.08	6.6-7.8	<2	Low-----	0.05	3	5	<.5
	4-12	20-30	1.20-1.40	0.2-0.6	0.11-0.14	6.6-7.8	<2	Low-----	0.10			
	12-18	2-10	1.40-1.60	2.0-6.0	0.05-0.07	6.6-7.8	<2	Low-----	0.02			
	18-60	0-4	1.50-1.65	6.0-20	0.02-0.04	>7.8	<2	Low-----	0.02			
Ornea-----	0-5	16-24	1.45-1.55	0.6-2.0	0.12-0.14	7.9-9.0	<2	Low-----	0.20	2	6	.5-1
	5-12	24-32	1.50-1.60	0.2-0.6	0.12-0.15	7.9-9.0	<2	Moderate	0.20			
	12-60	2-8	1.60-1.70	>20	0.02-0.04	7.9-9.0	<2	Low-----	0.02			
Abgese-----	0-6	5-15	1.40-1.50	2.0-6.0	0.10-0.12	7.9-8.4	<2	Low-----	0.17	5	3	.7-1
	6-31	18-30	1.35-1.45	0.6-2.0	0.12-0.15	7.9-8.4	<2	Moderate	0.15			
	31-60	5-10	1.50-1.60	2.0-6.0	0.09-0.11	7.9-8.4	<2	Low-----	0.10			
115*: Pits												
116----- Power	0-6	18-22	1.30-1.50	0.6-2.0	0.19-0.21	6.6-7.3	<2	Low-----	0.43	5	6	1-2
	6-19	27-35	1.35-1.55	0.2-0.6	0.16-0.18	7.4-8.4	<2	Moderate	0.43			
	19-60	15-20	1.35-1.55	0.6-2.0	0.16-0.18	7.9-8.4	<2	Low-----	0.37			
117*: Power-----	0-6	18-22	1.30-1.50	0.6-2.0	0.19-0.21	6.6-7.3	<2	Low-----	0.43	5	6	1-2
	6-19	27-35	1.35-1.55	0.2-0.6	0.16-0.18	7.4-8.4	<2	Moderate	0.43			
	19-60	15-20	1.35-1.55	0.6-2.0	0.16-0.18	7.9-8.4	<2	Low-----	0.37			
Chardoton-----	0-8	12-20	1.45-1.50	2.0-6.0	0.11-0.14	7.4-8.4	<4	Low-----	0.28	3	3	1-2
	8-41	35-55	1.40-1.50	0.06-0.2	0.15-0.18	7.4-9.0	<4	High-----	0.32			
	41-55	15-20	1.50-1.60	0.6-2.0	0.12-0.15	7.4-9.0	<4	Low-----	0.24			
	55-60	---	---	---	---	---	---	---	---			

See footnote at end of table.

TABLE 13.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Soil reaction	Salinity	Shrink- swell potential	Erosion factors		Wind erodi- bility group	Organic matter
									K	T		
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm					Pct
118*: Power-----	0-6	18-22	1.30-1.50	0.6-2.0	0.19-0.21	6.6-7.3	<2	Low-----	0.43	5	6	1-2
	6-19	27-35	1.35-1.55	0.2-0.6	0.16-0.18	7.4-8.4	<2	Moderate	0.43			
	19-60	15-20	1.35-1.55	0.6-2.0	0.16-0.18	7.9-8.4	<2	Low-----	0.37			
Jenness-----	0-6	12-20	1.50-1.60	0.6-2.0	0.13-0.19	6.6-7.8	<2	Low-----	0.37	3	5	1-2
	6-12	10-15	1.50-1.60	0.6-2.0	0.11-0.17	7.4-8.4	<2	Low-----	0.49			
	12-36	5-15	1.60-1.70	2.0-6.0	0.10-0.13	7.4-8.4	<2	Low-----	0.28			
	36-60	2-10	1.65-1.70	>20	0.06-0.09	7.4-8.4	<2	Low-----	0.10			
119*: Power-----	0-6	18-22	1.30-1.50	0.6-2.0	0.19-0.21	6.6-7.3	<2	Low-----	0.43	5	6	1-2
	6-19	27-35	1.35-1.55	0.2-0.6	0.16-0.18	7.4-8.4	<2	Moderate	0.43			
	19-60	15-20	1.35-1.55	0.6-2.0	0.16-0.18	7.9-8.4	<2	Low-----	0.37			
Purdam-----	0-6	20-25	1.50-1.60	0.6-2.0	0.19-0.21	6.6-7.3	<2	Low-----	0.43	2	6	1-2
	6-15	25-32	1.40-1.60	0.2-0.6	0.19-0.21	6.6-8.4	<2	Moderate	0.37			
	15-21	20-25	1.50-1.60	0.6-2.0	0.16-0.21	7.9-8.4	<2	Low-----	0.37			
	21-40	---	---	---	---	---	---	---	---			
	40-60	5-15	1.60-1.75	2.0-6.0	---	7.9-8.4	<2	Low-----	0.28			
120, 121----- Purdam	0-6	20-25	1.50-1.60	0.6-2.0	0.19-0.21	6.6-7.3	<2	Low-----	0.43	2	6	1-2
	6-15	25-32	1.40-1.60	0.2-0.6	0.19-0.21	6.6-8.4	<2	Moderate	0.37			
	15-21	20-25	1.50-1.60	0.6-2.0	0.16-0.21	7.9-8.4	<2	Low-----	0.37			
	21-40	---	---	---	---	---	---	---	---			
	40-60	5-15	1.60-1.75	2.0-6.0	---	7.9-8.4	<2	Low-----	0.28			
122*: Purdam-----	0-6	20-25	1.50-1.60	0.6-2.0	0.19-0.21	6.6-7.3	<2	Low-----	0.43	2	6	1-2
	6-15	25-32	1.40-1.60	0.2-0.6	0.19-0.21	6.6-8.4	<2	Moderate	0.37			
	15-21	20-25	1.50-1.60	0.6-2.0	0.16-0.21	7.9-8.4	<2	Low-----	0.37			
	21-40	---	---	---	---	---	---	---	---			
	40-60	5-15	1.60-1.75	2.0-6.0	---	7.9-8.4	<2	Low-----	0.28			
Sebree-----	0-4	30-35	1.40-1.50	0.2-0.6	0.19-0.21	6.1-7.8	8-16	Moderate	0.37	2	7	.5-1
	4-10	27-35	1.40-1.50	0.06-0.2	0.19-0.21	7.4-9.0	>8	Moderate	0.32			
	10-21	20-25	1.50-1.60	0.6-2.0	0.19-0.21	7.4-9.0	>8	Low-----	0.43			
	21-56	---	---	---	---	---	---	---	---			
Owsel-----	0-4	10-20	1.45-1.55	0.6-2.0	0.15-0.17	6.6-7.8	<2	Low-----	0.49	5	5	1-3
	4-14	28-35	1.45-1.55	0.2-0.6	0.15-0.18	6.6-7.8	<2	Moderate	0.43			
	14-18	20-27	1.45-1.55	0.2-0.6	0.14-0.16	6.6-7.8	<2	Low-----	0.49			
	18-36	10-20	1.45-1.55	0.2-0.6	0.14-0.16	7.9-9.0	<4	Low-----	0.49			
	36-60	10-15	1.50-1.60	2.0-6.0	0.10-0.12	7.9-9.0	<4	Low-----	0.43			
123*: Quartzburg-----	0-15	0-12	1.50-1.65	6.0-20	0.05-0.07	5.6-7.3	<2	Low-----	0.17	2	3	1-3
	15-36	0-10	1.55-1.70	>20	0.02-0.04	5.6-7.3	<2	Low-----	0.10			
	36-40	---	---	---	---	---	---	---	---			
Wagontown-----	0-6	5-15	1.25-1.45	2.0-6.0	0.07-0.08	6.1-7.3	<2	Low-----	0.05	3	6	.5-1
	6-18	5-15	1.40-1.55	2.0-6.0	0.05-0.07	5.6-6.5	<2	Low-----	0.05			
	18-41	2-10	1.40-1.60	>20	0.02-0.05	5.6-6.5	<2	Low-----	0.02			
	41-45	---	---	---	---	---	---	---	---			
124----- Quincy	0-3	1-6	1.45-1.60	6.0-20	0.08-0.11	6.1-8.4	<2	Low-----	0.17	5	1	.5-1
	3-60	1-7	1.50-1.70	6.0-20	0.08-0.12	6.6-8.4	<2	Low-----	0.28			
125----- Quincy	0-10	1-6	1.45-1.65	6.0-20	0.09-0.12	6.1-8.4	<2	Low-----	0.32	5	2	.5-1
	10-60	1-7	1.50-1.70	6.0-20	0.08-0.12	6.6-8.4	<2	Low-----	0.28			

See footnote at end of table.

TABLE 13.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm		K	T		Pct
126*: Rainey-----	0-9	5-10	1.60-1.70	2.0-6.0	0.11-0.13	6.1-7.3	<2	Low-----	0.24	2	3	2-4
	9-22	5-20	>1.50	2.0-6.0	0.06-0.18	6.1-7.3	<2	Low-----	0.32			
	22-32	---	---	---	---	---	---	---	---			
	32-36	---	---	---	---	---	---	---	---			
Brownlee-----	0-19	18-24	1.40-1.50	0.6-2.0	0.15-0.18	5.6-7.3	<2	Low-----	0.32	5	6	1-3
	19-54	24-35	1.40-1.50	0.2-0.6	0.15-0.18	5.6-7.3	<2	Moderate	0.28			
	54-60	15-25	1.50-1.60	0.6-2.0	0.08-0.12	5.6-7.3	<2	Low-----	0.15			
127*: Rainey-----	0-9	5-10	1.60-1.70	2.0-6.0	0.11-0.13	6.1-7.3	<2	Low-----	0.24	2	3	2-4
	9-22	5-20	>1.50	2.0-6.0	0.06-0.18	6.1-7.3	<2	Low-----	0.32			
	22-32	---	---	---	---	---	---	---	---			
	32-36	---	---	---	---	---	---	---	---			
Schoolhouse-----	0-5	5-10	1.40-1.50	6.0-20	0.06-0.08	5.1-6.5	<2	Low-----	0.10	1	8	1-3
	5-17	5-10	1.45-1.55	>20	0.03-0.05	5.1-6.5	<2	Low-----	0.02			
	17-21	---	---	---	---	---	---	---	---			
Oland-----	0-17	18-24	1.50-1.70	0.6-2.0	0.13-0.16	6.1-7.3	<2	Low-----	0.20	3	6	4-6
	17-23	18-24	1.50-1.70	0.6-2.0	0.13-0.15	6.1-7.3	<2	Low-----	0.15			
	23-60	10-18	1.50-1.70	2.0-6.0	0.05-0.08	6.1-7.3	<2	Low-----	0.05			
128*: Rainey-----	0-9	5-10	1.60-1.70	2.0-6.0	0.11-0.13	6.1-7.3	<2	Low-----	0.24	2	3	2-4
	9-22	5-20	>1.50	2.0-6.0	0.06-0.18	6.1-7.3	<2	Low-----	0.32			
	22-32	---	---	---	---	---	---	---	---			
	32-36	---	---	---	---	---	---	---	---			
Van Dusen-----	0-21	12-20	1.10-1.30	0.6-2.0	0.16-0.21	6.1-7.8	<2	Low-----	0.24	4	5	3-5
	21-40	22-30	1.40-1.50	0.2-0.6	0.14-0.21	6.1-7.8	<2	Moderate	0.32			
	40-60	10-18	1.50-1.70	0.2-0.6	0.11-0.18	6.6-7.8	<2	Low-----	0.32			
129*: Rainey-----	0-9	5-10	1.60-1.70	2.0-6.0	0.11-0.13	6.1-7.3	<2	Low-----	0.24	2	3	2-4
	9-22	5-20	>1.50	2.0-6.0	0.06-0.18	6.1-7.3	<2	Low-----	0.32			
	22-32	---	---	---	---	---	---	---	---			
	32-36	---	---	---	---	---	---	---	---			
Van Dusen-----	0-21	12-20	1.10-1.30	0.6-2.0	0.16-0.21	6.1-7.8	<2	Low-----	0.24	4	5	3-5
	21-40	22-30	1.40-1.50	0.2-0.6	0.14-0.21	6.1-7.8	<2	Moderate	0.32			
	40-60	10-18	1.50-1.70	0.2-0.6	0.11-0.18	6.6-7.8	<2	Low-----	0.32			
Schoolhouse-----	0-5	5-10	1.40-1.50	6.0-20	0.06-0.08	5.1-6.5	<2	Low-----	0.10	1	8	1-3
	5-17	5-10	1.45-1.55	>20	0.03-0.05	5.1-6.5	<2	Low-----	0.02			
	17-21	---	---	---	---	---	---	---	---			
130*: Roanhide-----	0-8	10-15	1.60-1.70	2.0-6.0	0.11-0.13	6.1-7.3	<2	Low-----	0.24	2	3	1-3
	8-32	10-15	1.60-1.70	2.0-6.0	0.07-0.09	6.1-7.3	<2	Low-----	0.20			
	32-36	---	---	---	---	---	---	---	---			
Bauscher-----	0-7	12-20	1.35-1.40	0.6-2.0	0.16-0.18	5.6-7.3	<2	Low-----	0.32	5	5	2-5
	7-29	20-30	1.50-1.60	0.2-0.6	0.12-0.18	5.6-7.3	<2	Moderate	0.28			
	29-49	27-35	1.40-1.50	0.2-0.6	0.18-0.20	5.6-7.3	<2	Moderate	0.37			
	49-60	10-15	1.55-1.65	2.0-6.0	0.09-0.13	5.6-7.3	<2	Low-----	0.17			

See footnote at end of table.

TABLE 13.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Soil reaction	Salinity	Shrink- swell potential	Erosion factors		Wind erodi- bility group	Organic matter
									K	T		
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm					Pct
131*:												
Roanhide-----	0-8	10-15	1.60-1.70	2.0-6.0	0.11-0.13	6.1-7.3	<2	Low-----	0.24	2	3	1-3
	8-32	10-15	1.60-1.70	2.0-6.0	0.07-0.09	6.1-7.3	<2	Low-----	0.20			
	32-36	---	---	---	---	---	---	---	---			
Bauscher-----	0-7	12-20	1.35-1.40	0.6-2.0	0.16-0.18	5.6-7.3	<2	Low-----	0.32	5	5	2-5
	7-29	20-30	1.50-1.60	0.2-0.6	0.12-0.18	5.6-7.3	<2	Moderate	0.28			
	29-49	27-35	1.40-1.50	0.2-0.6	0.18-0.20	5.6-7.3	<2	Moderate	0.37			
	49-60	10-15	1.55-1.65	2.0-6.0	0.09-0.13	5.6-7.3	<2	Low-----	0.17			
Schoolhouse-----	0-5	5-10	1.40-1.50	6.0-20	0.06-0.08	5.1-6.5	<2	Low-----	0.10	1	8	1-3
	5-17	5-10	1.45-1.55	>20	0.03-0.05	5.1-6.5	<2	Low-----	0.02			
	17-21	---	---	---	---	---	---	---	---			
132*:												
Rock outcrop.												
Rubble land.												
133, 134-----	0-5	5-15	1.40-1.50	2.0-6.0	0.13-0.16	7.4-9.0	<2	Low-----	0.28	5	3	.5-1
Royal	5-60	5-15	1.50-1.60	2.0-6.0	0.13-0.16	7.4-9.0	<2	Low-----	0.32			
135*, 136*:												
Royal-----	0-5	5-15	1.40-1.50	2.0-6.0	0.13-0.16	7.4-9.0	<2	Low-----	0.28	5	3	.5-1
	5-60	5-15	1.50-1.60	2.0-6.0	0.13-0.16	7.4-9.0	<2	Low-----	0.32			
Davey-----	0-15	5-10	1.50-1.65	6.0-20	0.09-0.11	7.4-7.8	<2	Low-----	0.17	5	2	.5-1
	15-22	8-15	1.35-1.55	2.0-6.0	0.11-0.15	7.4-8.4	<2	Low-----	0.28			
	22-60	3-10	1.40-1.60	6.0-20	0.08-0.10	7.9-8.4	<2	Low-----	0.10			
137*:												
Royal-----	0-5	5-15	1.40-1.50	2.0-6.0	0.13-0.16	7.4-9.0	<2	Low-----	0.28	5	3	.5-1
	5-60	5-15	1.50-1.60	2.0-6.0	0.13-0.16	7.4-9.0	<2	Low-----	0.32			
Shano-----	0-15	5-15	1.40-1.50	0.6-2.0	0.16-0.18	7.4-8.4	<2	Low-----	0.37	5	5	1-3
	15-42	5-12	1.50-1.60	0.6-2.0	0.17-0.20	7.4-9.0	<2	Low-----	0.43			
	42-60	5-10	1.55-1.65	2.0-6.0	0.11-0.17	7.4-9.0	<2	Low-----	0.24			
Rock outcrop.												
138*:												
Royal-----	0-5	5-15	1.40-1.50	2.0-6.0	0.13-0.16	7.4-9.0	<2	Low-----	0.28	5	3	.5-1
	5-60	5-15	1.50-1.60	2.0-6.0	0.13-0.16	7.4-9.0	<2	Low-----	0.32			
Truesdale-----	0-5	7-18	1.60-1.70	2.0-6.0	0.09-0.15	7.4-8.4	<2	Low-----	0.24	2	3	1-2
	5-27	7-18	1.60-1.70	2.0-6.0	0.07-0.15	7.4-8.4	2-4	Low-----	0.24			
	27-60	---	---	---	---	---	---	---	---			
139-----	0-6	18-27	1.30-1.45	0.6-2.0	0.09-0.11	6.6-8.4	<2	Moderate	0.15	1	8	1-3
Ruckles	6-11	50-60	1.35-1.40	0.06-0.2	0.07-0.11	6.6-7.8	<2	High-----	0.05			
	11-15	---	---	---	---	---	---	---	---			
140*:												
Schoolhouse-----	0-5	5-10	1.40-1.50	6.0-20	0.06-0.08	5.1-6.5	<2	Low-----	0.10	1	8	1-3
	5-17	5-10	1.45-1.55	>20	0.03-0.05	5.1-6.5	<2	Low-----	0.02			
	17-21	---	---	---	---	---	---	---	---			
Rock outcrop.												

See footnote at end of table.

TABLE 13.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter
									K	T		
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm					Pct
141----- Scism	0-12	12-18	1.50-1.60	0.6-2.0	0.19-0.21	7.4-8.4	<2	Low-----	0.43	2	4L	1-2
	12-25	12-18	1.50-1.60	0.6-2.0	0.19-0.21	7.9-9.0	<4	Low-----	0.55			
	25-29	---	---	---	---	---	---	---	---			
	29-60	12-18	1.50-1.60	0.6-2.0	0.16-0.21	7.9-9.0	2-8	Low-----	0.43			
142----- Scoon	0-3	10-15	1.10-1.35	0.6-2.0	0.13-0.16	6.6-7.8	<2	Low-----	0.32	1	3	1-3
	3-6	12-18	1.20-1.40	0.6-2.0	0.12-0.15	7.4-8.4	2-4	Low-----	0.43			
	6-15	10-15	1.20-1.40	0.6-2.0	0.09-0.12	7.4-8.4	2-4	Low-----	0.37			
	15-29	---	---	---	---	---	---	---	---			
	29-42	10-15	1.20-1.40	2.0-6.0	0.11-0.13	7.4-8.4	2-4	Low-----	0.32			
	42-68	5-10	1.25-1.45	6.0-20	0.07-0.08	7.4-8.4	2-4	Low-----	0.20			
143----- Shano	0-15	5-15	1.40-1.50	0.6-2.0	0.16-0.18	7.4-8.4	<2	Low-----	0.37	5	5	1-3
	15-42	5-12	1.50-1.60	0.6-2.0	0.17-0.20	7.4-9.0	<2	Low-----	0.43			
	42-60	5-10	1.55-1.65	2.0-6.0	0.11-0.17	7.4-9.0	<2	Low-----	0.24			
144*: Shano-----	0-5	5-18	1.40-1.50	0.6-2.0	0.18-0.20	7.4-8.4	<2	Low-----	0.43	5	5	1-3
	5-42	5-12	1.50-1.60	0.6-2.0	0.17-0.20	7.4-9.0	<2	Low-----	0.43			
	42-60	5-10	1.55-1.65	2.0-6.0	0.11-0.17	7.4-9.0	<2	Low-----	0.24			
Owsel-----	0-4	10-20	1.45-1.55	0.6-2.0	0.15-0.17	6.6-7.8	<2	Low-----	0.49	5	5	1-3
	4-14	28-35	1.45-1.55	0.2-0.6	0.15-0.18	6.6-7.8	<2	Moderate	0.43			
	14-18	20-27	1.45-1.55	0.2-0.6	0.14-0.16	6.6-7.8	<2	Low-----	0.49			
	18-36	10-20	1.45-1.55	0.2-0.6	0.14-0.16	7.9-9.0	<4	Low-----	0.49			
	36-60	10-15	1.50-1.60	2.0-6.0	0.10-0.12	7.9-9.0	<4	Low-----	0.43			
145*: Shano-----	0-15	5-10	1.45-1.50	2.0-6.0	0.14-0.17	7.4-8.4	<2	Low-----	0.28	5	3	1-2
	15-42	5-12	1.50-1.60	0.6-2.0	0.17-0.20	7.4-9.0	<2	Low-----	0.43			
	42-60	5-10	1.55-1.65	2.0-6.0	0.11-0.17	7.4-9.0	<2	Low-----	0.24			
Truesdale-----	0-5	7-18	1.60-1.70	2.0-6.0	0.09-0.15	7.4-8.4	<2	Low-----	0.24	2	3	1-2
	5-27	7-18	1.60-1.70	2.0-6.0	0.07-0.15	7.4-8.4	2-4	Low-----	0.24			
	27-60	---	---	---	---	---	---	---	---			
146----- Shoofly	0-3	22-27	1.30-1.40	0.6-2.0	0.16-0.20	7.4-9.0	<2	Moderate	0.32	1	6	.5-1
	3-12	30-35	1.25-1.35	0.06-0.2	0.17-0.21	7.4-9.0	<2	High-----	0.24			
	12-15	---	---	---	---	---	---	---	---			
	15-34	---	---	---	---	---	---	---	---			
	34-60	0-5	---	>20	0.03-0.06	7.4-8.4	<2	Low-----	0.02			
147*: Shoofly-----	0-3	22-27	1.30-1.40	0.6-2.0	0.16-0.20	7.4-9.0	<2	Moderate	0.32	1	6	.5-1
	3-12	30-35	1.25-1.35	0.06-0.2	0.17-0.21	7.4-9.0	<2	High-----	0.24			
	12-15	---	---	---	---	---	---	---	---			
	15-34	---	---	---	---	---	---	---	---			
	34-60	0-5	---	>20	0.03-0.06	7.4-8.4	<2	Low-----	0.02			
Ornea-----	0-5	16-24	1.45-1.55	0.6-2.0	0.12-0.14	7.9-9.0	<2	Low-----	0.20	2	6	.5-1
	5-12	24-32	1.50-1.60	0.2-0.6	0.12-0.15	7.9-9.0	<2	Moderate	0.20			
	12-60	2-8	1.60-1.70	>20	0.02-0.04	7.9-9.0	<2	Low-----	0.02			
148*: Sidlake-----	0-4	18-22	1.40-1.50	0.6-2.0	0.15-0.18	6.6-7.3	<2	Low-----	0.32	2	5	1-2
	4-16	24-32	1.45-1.55	0.2-0.6	0.14-0.19	6.6-7.8	<2	Moderate	0.28			
	16-23	20-25	1.45-1.55	0.6-2.0	0.10-0.13	7.4-8.4	<2	Low-----	0.15			
	23-26	---	---	---	---	---	---	---	---			
	26-30	---	---	---	---	---	---	---	---			

See footnote at end of table.

TABLE 13.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Soil reaction	Salinity	Shrink- swell potential	Erosion factors		Wind erodi- bility group	Organic matter
									K	T		
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm					Pct
148*: Bruncan-----	0-12	15-22	1.35-1.45	0.6-2.0	0.13-0.16	7.4-8.4	<2	Low-----	0.15	1	6	1-3
	12-15	16-24	1.35-1.45	0.2-0.6	0.08-0.12	>7.8	<2	Low-----	0.17			
	15-27	---	---	---	---	---	---	---	---			
	27-31	---	---	---	---	---	---	---	---			
149----- Simonton	0-4	10-20	1.25-1.40	0.6-2.0	0.16-0.18	5.6-7.3	<2	Low-----	0.28	5	6	1-2
	4-42	18-32	1.35-1.55	0.2-0.6	0.14-0.21	5.6-7.3	<2	Moderate	0.37			
	42-60	5-10	1.45-1.65	2.0-6.0	0.06-0.13	6.6-7.3	<2	Low-----	0.20			
150*: Simonton-----	0-4	10-20	1.25-1.40	0.6-2.0	0.16-0.18	5.6-7.3	<2	Low-----	0.28	5	6	1-2
	4-42	18-32	1.35-1.55	0.2-0.6	0.14-0.21	5.6-7.3	<2	Moderate	0.37			
	42-60	5-10	1.45-1.65	2.0-6.0	0.06-0.13	6.6-7.3	<2	Low-----	0.20			
Bauscher-----	0-7	12-20	1.35-1.40	0.6-2.0	0.16-0.18	5.6-7.3	<2	Low-----	0.32	5	5	2-5
	7-29	20-30	1.50-1.60	0.2-0.6	0.12-0.18	5.6-7.3	<2	Moderate	0.28			
	29-49	27-35	1.40-1.50	0.2-0.6	0.18-0.20	5.6-7.3	<2	Moderate	0.37			
	49-60	10-15	1.55-1.65	2.0-6.0	0.09-0.13	5.6-7.3	<2	Low-----	0.17			
151*: Simonton-----	0-4	10-20	1.25-1.40	0.6-2.0	0.16-0.18	5.6-7.3	<2	Low-----	0.28	5	6	1-2
	4-42	18-32	1.35-1.55	0.2-0.6	0.14-0.21	5.6-7.3	<2	Moderate	0.37			
	42-60	5-10	1.45-1.65	2.0-6.0	0.06-0.13	6.6-7.3	<2	Low-----	0.20			
Elkcreek-----	0-4	15-25	1.50-1.60	0.6-2.0	0.12-0.15	6.1-7.3	<2	Low-----	0.20	2	7	1-3
	4-10	28-35	1.40-1.55	0.2-0.6	0.11-0.14	6.1-7.3	<2	Moderate	0.20			
	10-22	20-25	1.50-1.60	0.6-2.0	0.12-0.15	6.1-7.3	<2	Low-----	0.20			
	22-26	---	---	---	---	---	---	---	---			
152*: Stavely-----	0-4	5-10	1.40-1.50	2.0-6.0	0.08-0.11	6.1-7.3	<2	Low-----	0.15	5	3	1-2
	4-28	5-10	1.50-1.60	2.0-6.0	0.06-0.13	6.1-7.3	<2	Low-----	0.28			
	28-60	5-10	1.55-1.65	2.0-6.0	0.03-0.07	6.1-7.3	<2	Low-----	0.10			
Coski-----	0-11	5-12	1.45-1.50	2.0-6.0	0.08-0.09	5.6-6.5	<2	Low-----	0.10	3	5	1-3
	11-42	7-15	1.55-1.65	2.0-6.0	0.08-0.11	5.6-6.5	<2	Low-----	0.15			
	42-46	---	---	---	---	---	---	---	---			
Switchback-----	0-11	5-15	1.20-1.40	0.6-2.0	0.10-0.12	6.6-7.3	<2	Low-----	0.20	2	---	1-3
	11-37	5-15	1.25-1.50	0.6-2.0	0.10-0.12	6.6-7.3	<2	Low-----	0.15			
	37-41	---	---	---	---	---	---	---	---			
153*: Switchback-----	0-11	5-15	1.20-1.40	0.6-2.0	0.10-0.12	6.6-7.3	<2	Low-----	0.20	2	---	1-3
	11-37	5-15	1.25-1.50	0.6-2.0	0.10-0.12	6.6-7.3	<2	Low-----	0.15			
	37-41	---	---	---	---	---	---	---	---			
Grousecreek-----	0-12	12-18	1.50-1.60	2.0-6.0	0.07-0.10	5.6-7.3	<2	Low-----	0.05	3	5	2-4
	12-32	12-18	1.55-1.65	2.0-6.0	0.04-0.07	5.6-7.3	<2	Low-----	0.02			
	32-50	2-10	1.60-1.70	6.0-20	0.02-0.04	5.6-7.3	<2	Low-----	0.02			
	50-54	---	---	---	---	---	---	---	---			
154----- Timmerman	0-7	5-10	1.65-1.75	2.0-6.0	0.04-0.07	7.4-8.4	<2	Low-----	0.20	3	8	.5-1
	7-16	5-15	1.65-1.75	2.0-6.0	0.07-0.09	7.4-8.4	<2	Low-----	0.24			
	16-60	0-10	1.70-1.80	>20	0.01-0.03	7.4-8.4	<2	Low-----	0.10			
155, 156----- Timmerman	0-6	5-15	1.45-1.65	2.0-6.0	0.10-0.13	7.4-8.4	<2	Low-----	0.24	5	3	.5-1
	6-17	5-15	1.40-1.60	2.0-6.0	0.10-0.13	7.4-8.4	<2	Low-----	0.24			
	17-60	0-10	1.45-1.70	>20	0.03-0.06	7.4-8.4	<2	Low-----	0.10			

See footnote at end of table.



TABLE 13.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Soil reaction	Salinity	Shrink- swell potential	Erosion factors		Wind erodi- bility group	Organic matter
									K	T		
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm					Pct
157*: Trevino-----	0-5	12-18	1.40-1.55	0.6-2.0	0.16-0.18	6.6-7.8	<2	Low-----	0.28	1	6	1-3
	5-12	12-18	1.50-1.60	0.6-2.0	0.16-0.21	6.6-8.4	<2	Low-----	0.28			
	12-18	10-18	1.50-1.60	0.6-2.0	0.12-0.16	6.6-8.4	<2	Low-----	0.32			
	18-22	---	---	---	---	---	---	---	---			
Garbutt-----	0-5	12-18	1.20-1.40	0.6-2.0	0.19-0.21	7.9-9.0	<2	Low-----	0.49	5	4L	<1
	5-60	5-18	1.25-1.35	0.6-2.0	0.15-0.21	7.4-9.0	2-8	Low-----	0.43			
Weso-----	0-5	7-18	1.30-1.50	0.6-2.0	0.16-0.19	7.9-9.0	<4	Low-----	0.55	5	5	<.5
	5-30	5-20	1.40-1.55	0.6-2.0	0.13-0.18	7.9-9.0	<8	Low-----	0.49			
	30-60	4-12	1.45-1.65	2.0-6.0	0.11-0.13	7.9-9.0	>4	Low-----	0.28			
158*: Trevino-----	0-5	12-18	1.40-1.55	0.6-2.0	0.16-0.18	6.6-7.8	<2	Low-----	0.28	1	6	1-3
	5-12	12-18	1.50-1.60	0.6-2.0	0.16-0.21	6.6-8.4	<2	Low-----	0.28			
	12-18	10-18	1.50-1.60	0.6-2.0	0.12-0.16	6.6-8.4	<2	Low-----	0.32			
	18-22	---	---	---	---	---	---	---	---			
Minidoka-----	0-12	10-18	1.30-1.40	0.6-2.0	0.19-0.21	7.4-8.4	<2	Low-----	0.49	2	4L	1-3
	12-27	10-18	1.30-1.40	0.6-2.0	0.19-0.21	7.4-8.4	<2	Low-----	0.49			
	27-43	---	---	---	---	---	---	---	---			
	43-60	10-18	1.30-1.40	0.6-2.0	0.19-0.21	7.4-8.4	<2	Low-----	0.49			
159*: Trevino-----	0-5	12-18	1.40-1.55	0.6-2.0	0.16-0.18	6.6-7.8	<2	Low-----	0.28	1	6	1-3
	5-12	12-18	1.50-1.60	0.6-2.0	0.16-0.21	6.6-8.4	<2	Low-----	0.28			
	12-18	10-18	1.50-1.60	0.6-2.0	0.12-0.16	6.6-8.4	<2	Low-----	0.32			
	18-22	---	---	---	---	---	---	---	---			
Rock outcrop.												
160*: Trosi-----	0-3	22-27	1.40-1.50	0.2-0.6	0.11-0.13	6.6-7.8	<2	Moderate	0.10	1	8	1-3
	3-6	28-35	1.45-1.55	0.2-0.6	0.12-0.16	6.6-7.8	<2	Moderate	0.15			
	6-16	35-50	1.45-1.55	<0.06	0.10-0.13	6.1-7.8	<2	Moderate	0.10			
	16-28	---	---	---	---	---	---	---	---			
	28-60	2-8	1.60-1.70	>20	0.03-0.05	6.1-7.8	<2	Low-----	0.05			
Chilcott-----	0-4	15-25	1.35-1.45	0.6-2.0	0.10-0.15	6.6-7.8	<2	Low-----	0.32	2	5	1-2
	4-7	30-35	1.40-1.50	0.2-0.6	0.11-0.16	6.6-7.8	<2	High-----	0.28			
	7-19	40-50	1.20-1.35	0.06-0.2	0.11-0.16	7.4-7.8	<2	High-----	0.24			
	19-22	27-50	1.20-1.30	0.06-0.2	0.08-0.12	7.4-8.4	<2	High-----	0.24			
	22-40	---	---	---	---	---	---	---	---			
Tenmile-----	0-10	14-24	---	0.6-2.0	0.11-0.14	6.6-7.8	<2	Low-----	0.15	5	7	2-3
	10-46	35-45	---	0.06-0.2	0.07-0.16	6.6-7.8	<2	Moderate	0.24			
	46-60	2-7	---	>20	0.03-0.05	7.4-8.4	<2	Low-----	0.15			
161, 162----- Truesdale	0-5	7-18	1.60-1.70	2.0-6.0	0.09-0.15	7.4-8.4	<2	Low-----	0.24	2	3	1-2
	5-27	7-18	1.60-1.70	2.0-6.0	0.07-0.15	7.4-8.4	2-4	Low-----	0.24			
	27-60	---	---	---	---	---	---	---	---			
163----- Typic Torriorthents	0-6	10-20	---	0.6-2.0	0.11-0.16	7.4-9.0	<4	Low-----	0.28	2	3	<.5
	6-60	---	---	---	---	---	---	---	---			
164*: Typic Torriorthents--	0-10	10-20	---	0.6-2.0	0.11-0.16	7.4-9.0	<4	Low-----	0.28	2	3	<.5
	10-60	---	---	---	---	---	---	---	---			

See footnote at end of table.

TABLE 13.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter
									K	T		
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm					Pct
164*: Badland.												
165*: Typic Torriorthents--	0-6	10-15	---	2.0-6.0	0.08-0.10	7.4-9.0	<4	Low-----	0.20	2	3	<.5
	6-60	---	---	---	---	---	---	-----	---			
Rubble land.												
166*: Urban land												
167, 168-----	0-3	5-10	1.35-1.50	0.6-2.0	0.10-0.15	7.4-9.0	<4	Low-----	0.24	2	3	<1
Vanderhoff	3-32	10-18	1.50-1.60	0.6-2.0	0.15-0.17	7.4-9.0	<4	Low-----	0.37			
	32-36	---	---	---	---	---	---	-----	---			
169*: Vanderhoff-----	0-19	5-10	1.35-1.50	0.6-2.0	0.10-0.14	7.4-9.0	<4	Low-----	0.37	2	3	.4-1
	19-32	10-18	1.50-1.60	0.6-2.0	0.15-0.17	7.4-9.0	<4	Low-----	0.37			
	32-36	---	---	---	---	---	---	-----	---			
Buko-----	0-7	4-18	1.45-1.50	2.0-6.0	0.10-0.14	7.4-8.4	<2	Low-----	0.20	2	3	1-2
	7-24	18-30	1.50-1.60	0.2-0.6	0.18-0.20	7.9-8.4	<2	Moderate	0.43			
	24-60	0-10	1.60-1.70	6.0-20	0.03-0.07	7.9-8.4	<2	Low-----	0.10			
Loray-----	0-13	10-15	1.55-1.65	2.0-6.0	0.07-0.09	7.4-8.4	<4	Low-----	0.15	1	5	<1
	13-60	0-8	1.50-1.65	2.0-20	0.03-0.05	7.9-9.0	<4	Low-----	0.05			
170-----	0-4	10-15	1.35-1.50	0.6-2.0	0.06-0.08	7.4-7.8	<2	Low-----	0.15	2	8	1-2
Vining	4-12	10-15	1.30-1.40	0.6-2.0	0.14-0.17	7.4-8.4	<2	Low-----	0.32			
	12-37	10-15	1.35-1.45	2.0-6.0	0.11-0.15	7.4-8.4	<2	Low-----	0.24			
	37-41	---	---	---	---	---	---	-----	---			
171*: Willhill-----	0-3	18-25	1.20-1.40	0.6-2.0	0.12-0.15	6.6-7.8	<2	Low-----	0.17	2	5	1-2
	3-8	27-35	1.30-1.50	0.2-0.6	0.09-0.15	6.6-7.8	<2	Moderate	0.15			
	8-24	16-25	1.40-1.60	0.6-2.0	0.08-0.10	>7.8	<2	Low-----	0.10			
	24-28	---	---	---	---	---	---	-----	---			
Cottle-----	0-4	15-25	1.40-1.55	0.6-2.0	0.11-0.15	7.4-8.4	<2	Low-----	0.24	1	6	1-2
	4-14	27-35	1.40-1.55	0.2-0.6	0.07-0.10	7.4-8.4	<2	Moderate	0.15			
	14-18	---	---	---	---	---	---	-----	---			
172*, 173*: Xeric Torriorthents--	0-5	5-15	---	0.6-2.0	0.11-0.15	7.4-9.0	<2	Low-----	0.20	2	3	.5-1
	5-60	---	---	---	---	---	<2	-----	---			
Xerollic Camborthids----	0-10	10-20	1.25-1.45	0.6-2.0	0.14-0.17	6.6-9.0	<2	Low-----	0.28	2	5	1-2
	10-60	---	---	---	---	---	<2	-----	---			
174-----	0-8	40-60	1.20-1.40	<0.06	0.14-0.16	6.6-7.3	<2	High-----	0.17	5	8	.5-1
Yutue	8-34	40-60	1.20-1.40	<0.06	0.14-0.16	6.6-7.8	<2	High-----	0.28			
	34-45	30-40	1.40-1.50	0.06-0.2	0.19-0.21	7.4-8.4	<2	Moderate	0.32			
	45-60	15-25	1.50-1.60	0.2-0.6	0.19-0.21	7.4-8.4	<2	Low-----	0.43			

\* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 14.--WATER FEATURES

("Flooding" and "water table" and terms such as "rare," "brief," and "apparent" are explained in the text. The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Soil name and map symbol	Hydrologic group	Flooding			High water table		
		Frequency	Duration	Months	Depth Ft	Kind	Months
1, 2, 3----- Abgese	B	None-----	---	---	>6.0	---	---
4----- Arbidge	C	None-----	---	---	>6.0	---	---
5*: Arbidge-----	C	None-----	---	---	>6.0	---	---
Buko-----	B	None-----	---	---	>6.0	---	---
6*: Badge-----	B	None-----	---	---	>6.0	---	---
Immiant-----	C	None-----	---	---	>6.0	---	---
Rubble land.							
7, 8----- Bahem	B	None-----	---	---	>6.0	---	---
9*: Bahem-----	B	None-----	---	---	>6.0	---	---
Minidoka-----	C	None-----	---	---	>6.0	---	---
Trevino-----	D	None-----	---	---	>6.0	---	---
10----- Baldock	C	Rare-----	---	---	1.5-3.0	Apparent	Apr-Nov
11----- Bram	C	Rare-----	---	---	3.0-6.0	Apparent	Apr-Nov
12----- Bramwell	C	Rare-----	---	---	2.0-3.5	Apparent	May-Sep
13----- Brinegar	B	Rare-----	---	---	3.0-5.0	Apparent	Feb-Jun
14*: Broad Canyon-----	B	None-----	---	---	>6.0	---	---
Coski-----	B	None-----	---	---	>6.0	---	---
15*: Broad Canyon-----	B	None-----	---	---	>6.0	---	---
Grousecreek-----	B	None-----	---	---	>6.0	---	---
16*: Broad Canyon-----	B	None-----	---	---	>6.0	---	---
Switchback-----	C	None-----	---	---	>6.0	---	---

See footnote at end of table.

TABLE 14.--WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table		
		Frequency	Duration	Months	Depth Ft	Kind	Months
17----- Brownlee	B	None-----	---	---	>6.0	---	---
18*: Brownlee-----	B	None-----	---	---	>6.0	---	---
Immiant-----	C	None-----	---	---	>6.0	---	---
19*: Brownlee-----	B	None-----	---	---	>6.0	---	---
Van Dusen-----	B	None-----	---	---	>6.0	---	---
20*: Bruncan-----	D	None-----	---	---	>6.0	---	---
Troughs-----	D	None-----	---	---	>6.0	---	---
21, 22----- Buko	B	None-----	---	---	>6.0	---	---
23----- Chardoton	D	None-----	---	---	>6.0	---	---
24, 25----- Chilcott	D	None-----	---	---	>6.0	---	---
26*: Chilcott-----	D	None-----	---	---	>6.0	---	---
Day-----	D	None-----	---	---	>6.0	---	---
Rock outcrop.							
27*: Chilcott-----	D	None-----	---	---	>6.0	---	---
Elijah-----	C	None-----	---	---	>6.0	---	---
28*: Chilcott-----	D	None-----	---	---	>6.0	---	---
Kunaton-----	D	None-----	---	---	>6.0	---	---
Chardoton-----	D	None-----	---	---	>6.0	---	---
29*: Chilcott-----	D	None-----	---	---	>6.0	---	---
Power-----	B	None-----	---	---	>6.0	---	---
30*. Cinder land							
31----- Colthorp	D	None-----	---	---	>6.0	---	---
32*: Colthorp-----	D	None-----	---	---	>6.0	---	---
Chilcott-----	D	None-----	---	---	>6.0	---	---

See footnote at end of table.

TABLE 14.--WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table		
		Frequency	Duration	Months	Depth Ft	Kind	Months
33*: Colthorp-----	D	None-----	---	---	>6.0	---	---
Kunaton-----	D	None-----	---	---	>6.0	---	---
34*: Colthorp-----	D	None-----	---	---	>6.0	---	---
Kunaton-----	D	None-----	---	---	>6.0	---	---
Rubble land.							
35*: Colthorp-----	D	None-----	---	---	>6.0	---	---
Minveno-----	D	None-----	---	---	>6.0	---	---
36*: Colthorp-----	D	None-----	---	---	>6.0	---	---
Rock outcrop.							
37*: Coski-----	B	None-----	---	---	>6.0	---	---
Broad Canyon-----	B	None-----	---	---	>6.0	---	---
38*: Cottle-----	D	None-----	---	---	>6.0	---	---
Sidlake-----	C	None-----	---	---	>6.0	---	---
39*: Cottle-----	D	None-----	---	---	>6.0	---	---
Trevino-----	D	None-----	---	---	>6.0	---	---
Rock outcrop.							
40*: Cottle-----	D	None-----	---	---	>6.0	---	---
Willhill-----	C	None-----	---	---	>6.0	---	---
41, 42----- Cowgil	B	None-----	---	---	>6.0	---	---
43*: Cowgil-----	B	None-----	---	---	>6.0	---	---
Rubble land.							
Rock outcrop.							
44, 45----- Davey	A	None-----	---	---	>6.0	---	---
46*: Davey-----	A	None-----	---	---	>6.0	---	---
Buko-----	B	None-----	---	---	>6.0	---	---

See footnote at end of table.

TABLE 14.--WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table		
		Frequency	Duration	Months	Depth Ft	Kind	Months
47*: Davey-----	A	None-----	---	---	>6.0	---	---
Mazuma-----	B	None-----	---	---	>6.0	---	---
48*: Davey-----	A	None-----	---	---	>6.0	---	---
Quincy-----	A	None-----	---	---	>6.0	---	---
49*: Davey-----	A	None-----	---	---	>6.0	---	---
Vanderhoff-----	C	None-----	---	---	>6.0	---	---
50, 51----- Dors	B	None-----	---	---	>6.0	---	---
52*: Dors-----	B	None-----	---	---	>6.0	---	---
Loray-----	A	None-----	---	---	>6.0	---	---
53*. Dune land							
54, 55----- Elijah	C	None-----	---	---	>6.0	---	---
56*: Elijah-----	C	None-----	---	---	>6.0	---	---
Purdam-----	C	None-----	---	---	>6.0	---	---
57*: Elkcreek-----	C	None-----	---	---	>6.0	---	---
Demast-----	B	None-----	---	---	>6.0	---	---
58*: Elkcreek-----	C	None-----	---	---	>6.0	---	---
Gaib-----	D	None-----	---	---	>6.0	---	---
Simonton-----	B	None-----	---	---	>6.0	---	---
59*: Farrot-----	C	None-----	---	---	>6.0	---	---
Haw-----	B	None-----	---	---	>6.0	---	---
60----- Fluvaquents	D	Occasional-----	Brief-----	Apr-Jun	1.5-3.0	Apparent	Apr-Nov
61*: Gaib-----	D	None-----	---	---	>6.0	---	---
Rubble land.							
62*: Gaib-----	D	None-----	---	---	>6.0	---	---

See footnote at end of table.

TABLE 14.--WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table		
		Frequency	Duration	Months	Depth Ft	Kind	Months
62*: Elkcreek----- Rock outcrop.	C	None-----	---	---	>6.0	---	---
63*: Gaib----- Elkcreek----- Simonton-----	D C B	None----- None----- None-----	--- --- ---	--- --- ---	>6.0 >6.0 >6.0	--- --- ---	--- --- ---
64*: Gaib----- Simonton----- Rock outcrop.	D B	None----- None-----	--- ---	--- ---	>6.0 >6.0	--- ---	--- ---
65, 66----- Garbutt	B	None-----	---	---	>6.0	---	---
67*: Garbutt----- Weso-----	B B	None----- None-----	--- ---	--- ---	>6.0 >6.0	--- ---	--- ---
68*: Garbutt----- Weso----- Trevino-----	B B D	None----- None----- None-----	--- --- ---	--- --- ---	>6.0 >6.0 >6.0	--- --- ---	--- --- ---
69*: Garbutt----- Trevino-----	B D	None----- None-----	--- ---	--- ---	>6.0 >6.0	--- ---	--- ---
70----- Grandview	C	Rare-----	---	---	3.5-5.0	Apparent	Apr-Sep
71*: Grandview----- Garbutt-----	B B	None----- None-----	--- ---	--- ---	>6.0 >6.0	--- ---	--- ---
72*: Graylock----- Broad Canyon-----	A B	None----- None-----	--- ---	--- ---	>6.0 >6.0	--- ---	--- ---
73----- Greenleaf	B	None-----	---	---	>6.0	---	---
74*: Greenleaf----- Shano-----	B B	None----- None-----	--- ---	--- ---	>6.0 >6.0	--- ---	--- ---

See footnote at end of table.

TABLE 14.--WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table		
		Frequency	Duration	Months	Depth Ft	Kind	Months
75*: Haplaquolls-----	D	Occasional-----	Brief-----	Apr-Jun	0.5-3.0	Apparent	Jan-Dec
Xerofluvents-----	D	Rare-----	---	---	1.0-5.0	Apparent	Apr-Sep
76*: Harahill-----	C	None-----	---	---	>6.0	---	---
Willho-----	D	None-----	---	---	>6.0	---	---
77*: Haw-----	B	None-----	---	---	>6.0	---	---
Farrot-----	C	None-----	---	---	>6.0	---	---
78*: Haw-----	B	None-----	---	---	>6.0	---	---
Lankbush-----	B	None-----	---	---	>6.0	---	---
79----- Hawsley	A	None-----	---	---	>6.0	---	---
80*: Hotcreek-----	D	None-----	---	---	>6.0	---	---
Troughs-----	D	None-----	---	---	>6.0	---	---
81----- Houk	C	Frequent-----	Long-----	Apr-May	2.5-5.0	Apparent	Apr-Sep
82----- Immiant	C	None-----	---	---	>6.0	---	---
83*: Immiant-----	C	None-----	---	---	>6.0	---	---
Ruckles-----	D	None-----	---	---	>6.0	---	---
Rock outcrop.							
84, 85----- Jacquith	C	None-----	---	---	>6.0	---	---
86*: Jacquith-----	C	None-----	---	---	>6.0	---	---
Quincy-----	A	None-----	---	---	>6.0	---	---
87*: Karcas-----	D	None-----	---	---	>6.0	---	---
Day-----	D	None-----	---	---	>6.0	---	---
Rock outcrop.							
88----- Kunaton	D	None-----	---	---	>6.0	---	---
89*: Kunaton-----	D	None-----	---	---	>6.0	---	---

See footnote at end of table.



TABLE 14.--WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table		
		Frequency	Duration	Months	Depth	Kind	Months
					<u>Ft</u>		
89*: Chilcott-----	D	None-----	---	---	>6.0	---	---
90----- Lankbush	B	None-----	---	---	>6.0	---	---
91*: Lankbush-----	B	None-----	---	---	>6.0	---	---
Lanktree-----	C	None-----	---	---	>6.0	---	---
92*: Lankbush-----	B	None-----	---	---	>6.0	---	---
Jenness-----	B	None-----	---	---	>6.0	---	---
93----- Lanktree	C	None-----	---	---	>6.0	---	---
94*: Lanktree-----	C	None-----	---	---	>6.0	---	---
Chilcott-----	D	None-----	---	---	>6.0	---	---
95----- Letha	C	None-----	---	---	4.0-6.0	Apparent	Jul-Sep
96----- Letha	C	Rare-----	---	---	3.0-4.0	Apparent	May-Sep
97*: Letha-----	C	Rare-----	---	---	3.0-4.0	Apparent	May-Sep
Baldock-----	C	Rare-----	---	---	1.5-3.0	Apparent	Apr-Nov
98----- Loray	A	None-----	---	---	>6.0	---	---
99*: Loray-----	A	None-----	---	---	>6.0	---	---
Dors-----	B	None-----	---	---	>6.0	---	---
100----- Mazuma	B	None-----	---	---	>6.0	---	---
101*: Mazuma-----	B	None-----	---	---	>6.0	---	---
Hawsley-----	A	None-----	---	---	>6.0	---	---
102----- McKeeth	B	None-----	---	---	>6.0	---	---
103*, 104*: Minidoka-----	C	None-----	---	---	>6.0	---	---
Minveno-----	D	None-----	---	---	>6.0	---	---
105, 106----- Minveno	D	None-----	---	---	>6.0	---	---

See footnote at end of table.

TABLE 14.--WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table		
		Frequency	Duration	Months	Depth Ft	Kind	Months
107*: Minveno-----	D	None-----	---	---	>6.0	---	---
Minidoka-----	C	None-----	---	---	>6.0	---	---
108*: Monroe-----	B	None-----	---	---	>6.0	---	---
Jenness-----	B	None-----	---	---	>6.0	---	---
109*: Monroe-----	B	None-----	---	---	>6.0	---	---
Goose Creek-----	C	Rare-----	---	---	2.5-3.5	Apparent	May-Sep
110*: Moran-----	B	None-----	---	---	>6.0	---	---
Teewinot-----	D	None-----	---	---	>6.0	---	---
Coski-----	B	None-----	---	---	>6.0	---	---
111----- Oland	B	None-----	---	---	>6.0	---	---
112----- Ornea	B	None-----	---	---	>6.0	---	---
113*: Owsel-----	B	None-----	---	---	>6.0	---	---
Purdam-----	C	None-----	---	---	>6.0	---	---
114*: Perazzo-----	B	None-----	---	---	>6.0	---	---
Ornea-----	B	None-----	---	---	>6.0	---	---
Abgese-----	B	None-----	---	---	>6.0	---	---
115*. Pits							
116----- Power	B	None-----	---	---	>6.0	---	---
117*: Power-----	B	None-----	---	---	>6.0	---	---
Chardoton-----	D	None-----	---	---	>6.0	---	---
118*: Power-----	B	None-----	---	---	>6.0	---	---
Jenness-----	B	None-----	---	---	>6.0	---	---
119*: Power-----	B	None-----	---	---	>6.0	---	---
Purdam-----	C	None-----	---	---	>6.0	---	---

See footnote at end of table.

TABLE 14.--WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table		
		Frequency	Duration	Months	Depth Ft	Kind	Months
120, 121----- Purdam	C	None-----	---	---	>6.0	---	---
122*: Purdam-----	C	None-----	---	---	>6.0	---	---
Sebree-----	D	None-----	---	---	>6.0	---	---
Owsel-----	B	None-----	---	---	>6.0	---	---
123*: Quartzburg-----	C	None-----	---	---	>6.0	---	---
Wagontown-----	B	None-----	---	---	>6.0	---	---
124, 125----- Quincy	A	None-----	---	---	>6.0	---	---
126*: Rainey-----	C	None-----	---	---	>6.0	---	---
Brownlee-----	B	None-----	---	---	>6.0	---	---
127*: Rainey-----	C	None-----	---	---	>6.0	---	---
Schoolhouse-----	D	None-----	---	---	>6.0	---	---
Oland-----	B	None-----	---	---	>6.0	---	---
128*: Rainey-----	C	None-----	---	---	>6.0	---	---
Van Dusen-----	B	None-----	---	---	>6.0	---	---
129*: Rainey-----	C	None-----	---	---	>6.0	---	---
Van Dusen-----	B	None-----	---	---	>6.0	---	---
Schoolhouse-----	D	None-----	---	---	>6.0	---	---
130*: Roanhide-----	C	None-----	---	---	>6.0	---	---
Bauscher-----	B	None-----	---	---	>6.0	---	---
131*: Roanhide-----	C	None-----	---	---	>6.0	---	---
Bauscher-----	B	None-----	---	---	>6.0	---	---
Schoolhouse-----	D	None-----	---	---	>6.0	---	---
132*: Rock outcrop.  Rubble land.							
133, 134----- Royal	B	None-----	---	---	>6.0	---	---

See footnote at end of table.

TABLE 14.--WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table		
		Frequency	Duration	Months	Depth Ft	Kind	Months
135*, 136*: Royal-----	B	None-----	---	---	>6.0	---	---
Davey-----	A	None-----	---	---	>6.0	---	---
137*: Royal-----	B	None-----	---	---	>6.0	---	---
Shano-----	B	None-----	---	---	>6.0	---	---
Rock outcrop.							
138*: Royal-----	B	None-----	---	---	>6.0	---	---
Truesdale-----	C	None-----	---	---	>6.0	---	---
139----- Ruckles	D	None-----	---	---	>6.0	---	---
140*: Schoolhouse-----	D	None-----	---	---	>6.0	---	---
Rock outcrop.							
141----- Scism	C	None-----	---	---	>6.0	---	---
142----- Scoon	D	None-----	---	---	>6.0	---	---
143----- Shano	B	None-----	---	---	>6.0	---	---
144*: Shano-----	B	None-----	---	---	>6.0	---	---
Owsel-----	B	None-----	---	---	>6.0	---	---
145*: Shano-----	B	None-----	---	---	>6.0	---	---
Truesdale-----	C	None-----	---	---	>6.0	---	---
146----- Shoofly	D	None-----	---	---	>6.0	---	---
147*: Shoofly-----	D	None-----	---	---	>6.0	---	---
Ornea-----	B	None-----	---	---	>6.0	---	---
148*: Sidlake-----	C	None-----	---	---	>6.0	---	---
Bruncan-----	D	None-----	---	---	>6.0	---	---
149----- Simonton	B	None-----	---	---	>6.0	---	---

See footnote at end of table.

TABLE 14.--WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table		
		Frequency	Duration	Months	Depth Ft	Kind	Months
150*: Simonton-----	B	None-----	---	---	>6.0	---	---
Bauscher-----	B	None-----	---	---	>6.0	---	---
151*: Simonton-----	B	None-----	---	---	>6.0	---	---
Elkcreek-----	C	None-----	---	---	>6.0	---	---
152*: Stavely-----	B	None-----	---	---	>6.0	---	---
Coski-----	B	None-----	---	---	>6.0	---	---
Switchback-----	C	None-----	---	---	>6.0	---	---
153*: Switchback-----	C	None-----	---	---	>6.0	---	---
Grousecreek-----	B	None-----	---	---	>6.0	---	---
154, 155, 156----- Timmerman	B	None-----	---	---	>6.0	---	---
157*: Trevino-----	D	None-----	---	---	>6.0	---	---
Garbutt-----	B	None-----	---	---	>6.0	---	---
Weso-----	B	None-----	---	---	>6.0	---	---
158*: Trevino-----	D	None-----	---	---	>6.0	---	---
Minidoka-----	C	None-----	---	---	>6.0	---	---
159*: Trevino-----	D	None-----	---	---	>6.0	---	---
Rock outcrop.							
160*: Trosi-----	D	None-----	---	---	>6.0	---	---
Chilcott-----	D	None-----	---	---	>6.0	---	---
Tenmile-----	C	None-----	---	---	>6.0	---	---
161, 162----- Truesdale	C	None-----	---	---	>6.0	---	---
163----- Typic Torriorthents	C	None-----	---	---	>6.0	---	---
164*: Typic Torriorthents-----	C	None-----	---	---	>6.0	---	---
Badland.							

See footnote at end of table.

TABLE 14.--WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table		
		Frequency	Duration	Months	Depth	Kind	Months
165*: Typic Torriorthents----- Rubble land.	C	None-----	---	---	<u>Ft</u> >6.0	---	---
166*. Urban land							
167, 168----- Vanderhoff	C	None-----	---	---	>6.0	---	---
169*: Vanderhoff-----	C	None-----	---	---	>6.0	---	---
Buko-----	B	None-----	---	---	>6.0	---	---
Loray-----	A	None-----	---	---	>6.0	---	---
170----- Vining	C	None-----	---	---	>6.0	---	---
171*: Willhill-----	C	None-----	---	---	>6.0	---	---
Cottle-----	D	None-----	---	---	>6.0	---	---
172*, 173*: Xeric Torriorthents-----	C	None-----	---	---	>6.0	---	---
Xerollic Camborthids---	C	None-----	---	---	>6.0	---	---
174----- Yutruue	D	None-----	---	---	>6.0	---	---

\* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 15.--SOIL FEATURES

(The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Soil name and map symbol	Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
	Depth	Hardness	Depth	Thickness		Uncoated steel	Concrete
	In		In				
1, 2, 3----- Abgese	>60	---	---	---	Moderate-----	High-----	Low.
4----- Arbidge	>60	---	20-40	Thin	Low-----	High-----	Low.
5*: Arbidge-----	>60	---	20-40	Thin	Low-----	High-----	Low.
Buko-----	>60	---	---	---	Low-----	High-----	Low.
6*: Badge-----	40-60	Hard	---	---	Moderate-----	High-----	Low.
Immiant-----	20-40	Hard	---	---	Moderate-----	Moderate-----	Low.
Rubble land.							
7, 8----- Bahem	>60	---	---	---	Low-----	High-----	Low.
9*: Bahem-----	>60	---	---	---	Low-----	High-----	Low.
Minidoka-----	>60	---	20-40	Thick	Low-----	High-----	Low.
Trevino-----	8-20	Hard	---	---	Low-----	High-----	Low.
10----- Baldock	>60	---	---	---	High-----	High-----	Moderate.
11----- Bram	>60	---	---	---	Moderate-----	High-----	Moderate.
12----- Bramwell	>60	---	---	---	Moderate-----	High-----	Moderate.
13----- Brinegar	>60	---	---	---	Moderate-----	Moderate-----	Low.
14*: Broad Canyon-----	40-60	Soft	---	---	Moderate-----	Moderate-----	Moderate.
Coski-----	40-60	Hard	---	---	Moderate-----	Moderate-----	Moderate.
15*: Broad Canyon-----	40-60	Soft	---	---	Moderate-----	Moderate-----	Moderate.
Grousecreek-----	40-60	Hard	---	---	Moderate-----	Moderate-----	Moderate.
16*: Broad Canyon-----	40-60	Soft	---	---	Moderate-----	Moderate-----	Moderate.
Switchback-----	20-40	Soft	---	---	Moderate-----	Moderate-----	Low.
17----- Brownlee	>60	---	---	---	Moderate-----	Moderate-----	Moderate.

See footnote at end of table.

TABLE 15.--SOIL FEATURES--Continued

Soil name and map symbol	Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
	Depth	Hardness	Depth	Thickness		Uncoated steel	Concrete
	<u>In</u>		<u>In</u>				
18*: Brownlee-----	>60	---	---	---	Moderate-----	Moderate-----	Moderate.
Immiant-----	20-40	Hard	---	---	Moderate-----	Moderate-----	Low.
19*: Brownlee-----	>60	---	---	---	Moderate-----	Moderate-----	Moderate.
Van Dusen-----	>60	---	---	---	Moderate-----	Moderate-----	Low.
20*: Bruncan-----	13-30	Hard	11-18	Thick	Low-----	High-----	Low.
Troughs-----	20-30	Hard	12-20	Thick	Low-----	High-----	Low.
21, 22----- Buko	>60	---	---	---	Low-----	High-----	Low.
23----- Chardoton	>60	---	40-60	Thin	Low-----	High-----	Low.
24, 25----- Chilcott	>60	---	20-40	Thick	Low-----	High-----	Low.
26*: Chilcott-----	>60	---	20-40	Thick	Low-----	High-----	Low.
Day-----	>60	---	---	---	Moderate-----	High-----	Low.
Rock outcrop.							
27*: Chilcott-----	>60	---	20-40	Thick	Low-----	High-----	Low.
Elijah-----	>60	---	20-40	Thick	Low-----	High-----	Low.
28*: Chilcott-----	>60	---	20-40	Thick	Low-----	High-----	Low.
Kunaton-----	20-40	Hard	10-20	Thick	Low-----	High-----	Low.
Chardoton-----	>60	---	40-60	Thin	Low-----	High-----	Low.
29*: Chilcott-----	>60	---	20-40	Thick	Low-----	High-----	Low.
Power-----	>60	---	---	---	Low-----	High-----	Low.
30*: Cinder land							
31----- Colthorp	20-40	Hard	10-20	Thick	Low-----	High-----	Low.
32*: Colthorp-----	20-40	Hard	10-20	Thick	Low-----	High-----	Low.
Chilcott-----	>60	---	20-40	Thick	Low-----	High-----	Low.
33*: Colthorp-----	20-40	Hard	10-20	Thick	Low-----	High-----	Low.

See footnote at end of table.



TABLE 15.--SOIL FEATURES--Continued

Soil name and map symbol	Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
	Depth	Hardness	Depth	Thickness		Uncoated steel	Concrete
	In		In				
33*: Kunaton-----	20-40	Hard	10-20	Thick	Low-----	High-----	Low.
34*: Colthorp-----	20-40	Hard	10-20	Thick	Low-----	High-----	Low.
Kunaton-----	20-40	Hard	10-20	Thick	Low-----	High-----	Low.
Rubble land.							
35*: Colthorp-----	20-40	Hard	10-20	Thick	Low-----	High-----	Low.
Minveno-----	20-40	Hard	10-20	Thick	Low-----	High-----	Low.
36*: Colthorp-----	20-40	Hard	10-20	Thick	Low-----	High-----	Low.
Rock outcrop.							
37*: Coski-----	40-60	Hard	---	---	Moderate-----	Moderate-----	Moderate.
Broad Canyon-----	40-60	Soft	---	---	Moderate-----	Moderate-----	Moderate.
38*: Cottle-----	11-16	Hard	---	---	Low-----	High-----	Low.
Sidlake-----	20-40	Hard	---	---	Low-----	High-----	Low.
39*: Cottle-----	10-20	Hard	---	---	Low-----	High-----	Low.
Trevino-----	8-20	Hard	---	---	Low-----	High-----	Low.
Rock outcrop.							
40*: Cottle-----	11-16	Hard	---	---	Low-----	High-----	Low.
Willhill-----	21-40	Hard	---	---	Low-----	High-----	Low.
41, 42----- Cowgil	>60	---	---	---	Moderate-----	High-----	Low.
43*: Cowgil-----	>60	---	---	---	Moderate-----	High-----	Low.
Rubble land.							
Rock outcrop.							
44, 45----- Davey	>60	---	---	---	Low-----	High-----	Low.
46*: Davey-----	>60	---	---	---	Low-----	High-----	Low.
Buko-----	>60	---	---	---	Low-----	High-----	Low.

See footnote at end of table.

TABLE 15.--SOIL FEATURES--Continued

Soil name and map symbol	Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
	Depth	Hardness	Depth	Thickness		Uncoated steel	Concrete
	In		In				
47*: Davey-----	>60	---	---	---	Low-----	High-----	Low.
Mazuma-----	>60	---	---	---	Low-----	High-----	Low.
48*: Davey-----	>60	---	---	---	Low-----	High-----	Low.
Quincy-----	>60	---	---	---	Low-----	High-----	Low.
49*: Davey-----	>60	---	---	---	Low-----	High-----	Low.
Vanderhoff-----	20-40	Soft	---	---	Low-----	High-----	Low.
50, 51- Dors	>60	---	---	---	Low-----	High-----	Low.
52*: Dors-----	>60	---	---	---	Low-----	High-----	Low.
Loray-----	>60	---	---	---	Low-----	High-----	Low.
53*. Dune land							
54, 55- Elijah	>60	---	20-40	Thick	Low-----	High-----	Low.
56*: Elijah-----	>60	---	20-40	Thick	Low-----	High-----	Low.
Purdam-----	>60	---	20-40	Thin	Low-----	High-----	Low.
57*: Elkcreek-----	20-40	Hard	---	---	Moderate-----	Moderate-----	Low.
Demast-----	40-60	Soft	---	---	Moderate-----	Moderate-----	Moderate.
58*: Elkcreek-----	20-40	Hard	---	---	Moderate-----	Moderate-----	Low.
Gaib-----	10-20	Hard	---	---	Moderate-----	Moderate-----	Moderate.
Simonton-----	>60	---	---	---	Moderate-----	Moderate-----	Moderate.
59*: Farrot-----	20-40	Hard	---	---	Moderate-----	High-----	Low.
Haw-----	>60	---	---	---	Low-----	High-----	Low.
60- Fluvaquents	>60	---	---	---	High-----	High-----	Low.
61*: Gaib-----	10-20	Hard	---	---	Moderate-----	Moderate-----	Moderate.
Rubble land.							
62*: Gaib-----	10-20	Hard	---	---	Moderate-----	Moderate-----	Moderate.

See footnote at end of table.

TABLE 15.--SOIL FEATURES--Continued

Soil name and map symbol	Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
	Depth	Hardness	Depth	Thickness		Uncoated steel	Concrete
	In		In				
62*: Elkcreek-----	20-40	Hard	---	---	Moderate-----	Moderate-----	Low.
Rock outcrop.							
63*: Gaib-----	10-20	Hard	---	---	Moderate-----	Moderate-----	Moderate.
Elkcreek-----	20-40	Hard	---	---	Moderate-----	Moderate-----	Low.
Simonton-----	>60	---	---	---	Moderate-----	Moderate-----	Moderate.
64*: Gaib-----	10-20	Hard	---	---	Moderate-----	Moderate-----	Moderate.
Simonton-----	>60	---	---	---	Moderate-----	Moderate-----	Moderate.
Rock outcrop.							
65, 66----- Garbutt	>60	---	---	---	Low-----	High-----	Low.
67*: Garbutt-----	>60	---	---	---	Low-----	High-----	Low.
Weso-----	>60	---	---	---	Low-----	High-----	Low.
68*: Garbutt-----	>60	---	---	---	Low-----	High-----	Low.
Weso-----	>60	---	---	---	Low-----	High-----	Low.
Trevino-----	8-20	Hard	---	---	Low-----	High-----	Low.
69*: Garbutt-----	>60	---	---	---	Low-----	High-----	Low.
Trevino-----	8-20	Hard	---	---	Low-----	High-----	Low.
70----- Grandview	>60	---	---	---	Low-----	High-----	Moderate.
71*: Grandview-----	>60	---	---	---	Low-----	High-----	Moderate.
Garbutt-----	>60	---	---	---	Low-----	High-----	Low.
72*: Graylock-----	40-60	Hard	---	---	Low-----	High-----	High.
Broad Canyon-----	40-60	Soft	---	---	Moderate-----	Moderate-----	Moderate.
73----- Greenleaf	>60	---	---	---	Low-----	High-----	Low.
74*: Greenleaf-----	>60	---	---	---	Low-----	High-----	Low.
Shano-----	>60	---	---	---	Low-----	High-----	Low.

See footnote at end of table.

TABLE 15.--SOIL FEATURES--Continued

Soil name and map symbol	Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
	Depth	Hardness	Depth	Thickness		Uncoated steel	Concrete
	<u>In</u>		<u>In</u>				
75*: Haplaquolls-----	>60	---	---	---	High-----	High-----	Low.
Xerofluvents-----	>60	---	---	---	Moderate-----	Moderate-----	Low.
76*: Harahill-----	24-40	Hard	---	---	Moderate-----	Moderate-----	Moderate.
Willho-----	>60	---	20-40	Thick	Moderate-----	Moderate-----	Moderate.
77*: Haw-----	>60	---	---	---	Low-----	High-----	Low.
Farrot-----	20-40	Hard	---	---	Moderate-----	High-----	Low.
78*: Haw-----	>60	---	---	---	Low-----	High-----	Low.
Lankbush-----	>60	---	---	---	Low-----	High-----	Low.
79----- Hawsley	>60	---	---	---	Low-----	High-----	Low.
80*: Hotcreek-----	8-14	Hard	6-12	Thin	Low-----	High-----	Low.
Troughs-----	20-40	Hard	12-20	Thick	Low-----	High-----	Low.
81----- Houk	>60	---	---	---	High-----	High-----	Low.
82----- Immiant	20-40	Hard	---	---	Moderate-----	Moderate-----	Low.
83*: Immiant-----	20-40	Hard	---	---	Moderate-----	Moderate-----	Low.
Ruckles-----	10-20	Hard	---	---	Moderate-----	Moderate-----	Low.
Rock outcrop.							
84, 85----- Jacquith	>60	---	20-40	Thin	Low-----	High-----	Low.
86*: Jacquith-----	>60	---	20-40	Thin	Low-----	High-----	Low.
Quincy-----	>60	---	---	---	Low-----	High-----	Low.
87*: Karcas-----	20-40	Hard	---	---	Moderate-----	High-----	Low.
Day-----	>60	---	---	---	Moderate-----	High-----	Low.
Rock outcrop.							
88----- Kunaton	20-40	Hard	10-20	Thick	Low-----	High-----	Low.
89*: Kunaton-----	20-40	Hard	10-20	Thick	Low-----	High-----	Low.

See footnote at end of table.

TABLE 15.--SOIL FEATURES--Continued

Soil name and map symbol	Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
	Depth	Hardness	Depth	Thickness		Uncoated steel	Concrete
	In		In				
89*: Chilcott-----	>60	---	20-40	Thick	Low-----	High-----	Low.
90----- Lankbush	>60	---	---	---	Low-----	High-----	Low.
91*: Lankbush-----	>60	---	---	---	Low-----	High-----	Low.
Lanktree-----	>60	---	---	---	Low-----	High-----	Low.
92*: Lankbush-----	>60	---	---	---	Low-----	High-----	Low.
Jenness-----	>60	---	---	---	Low-----	High-----	Low.
93----- Lanktree	>60	---	---	---	Low-----	High-----	Low.
94*: Lanktree-----	>60	---	---	---	Low-----	High-----	Low.
Chilcott-----	>60	---	20-40	Thick	Low-----	High-----	Low.
95----- Letha	>60	---	---	---	Moderate-----	High-----	Low.
96----- Letha	>60	---	---	---	Moderate-----	High-----	Low.
97*: Letha-----	>60	---	---	---	Moderate-----	High-----	Low.
Baldock-----	>60	---	---	---	High-----	High-----	Moderate.
98----- Loray	>60	---	---	---	Low-----	High-----	Low.
99*: Loray-----	>60	---	---	---	Low-----	High-----	Low.
Dors-----	>60	---	---	---	Low-----	High-----	Low.
100----- Mazuma	>60	---	---	---	Low-----	High-----	Low.
101*: Mazuma-----	>60	---	---	---	Low-----	High-----	Low.
Hawsley-----	>60	---	---	---	Low-----	High-----	Low.
102----- McKeeth	>60	---	---	---	Low-----	High-----	Low.
103*, 104*: Minidoka-----	>60	---	20-40	Thick	Low-----	High-----	Low.
Minveno-----	20-40	Hard	10-20	Thick	Low-----	High-----	Low.
105, 106----- Minveno	20-40	Hard	10-20	Thick	Low-----	High-----	Low.

See footnote at end of table.

TABLE 15.--SOIL FEATURES--Continued

Soil name and map symbol	Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
	Depth	Hardness	Depth	Thickness		Uncoated steel	Concrete
	In		In				
107*: Minveno-----	20-40	Hard	10-20	Thick	Low-----	High-----	Low.
Minidoka-----	>60	---	20-40	Thick	Low-----	High-----	Low.
108*: Monroe-----	>60	---	---	---	Moderate-----	High-----	Moderate.
Jenness-----	>60	---	---	---	Low-----	High-----	Low.
109*: Monroe-----	>60	---	---	---	Moderate-----	High-----	Moderate.
Goose Creek-----	>60	---	---	---	Moderate-----	High-----	Low.
110*: Moran-----	40-60	Hard	---	---	Moderate-----	High-----	High.
Teewinot-----	10-20	Hard	---	---	Moderate-----	Moderate-----	Moderate.
Coski-----	40-60	Hard	---	---	Moderate-----	Moderate-----	Moderate.
111----- Oland	>60	---	---	---	Moderate-----	Moderate-----	Low.
112----- Ornea	>60	---	---	---	Low-----	High-----	Low.
113*: Owsel-----	>60	---	---	---	Low-----	High-----	Low.
Purdam-----	>60	---	20-40	Thin	Low-----	High-----	Low.
114*: Perazzo-----	>60	---	---	---	Low-----	High-----	Low.
Ornea-----	>60	---	---	---	Low-----	High-----	Low.
Abgese-----	>60	---	---	---	Moderate-----	High-----	Low.
115*: Pits							
116----- Power	>60	---	---	---	Low-----	High-----	Low.
117*: Power-----	>60	---	---	---	Low-----	High-----	Low.
Chardoton-----	>60	---	40-60	Thin	Low-----	High-----	Low.
118*: Power-----	>60	---	---	---	Low-----	High-----	Low.
Jenness-----	>60	---	---	---	Low-----	High-----	Low.
119*: Power-----	>60	---	---	---	Low-----	High-----	Low.
Purdam-----	>60	---	20-40	Thin	Low-----	High-----	Low.

See footnote at end of table.

TABLE 15.--SOIL FEATURES--Continued

Soil name and map symbol	Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
	Depth	Hardness	Depth	Thickness		Uncoated steel	Concrete
	In		In				
120, 121----- Purdam	>60	---	20-40	Thin	Low-----	High-----	Low.
122*: Purdam-----	>60	---	20-40	Thin	Low-----	High-----	Low.
Sebree-----	>60	---	20-40	Thick	Moderate-----	High-----	Low.
Owsel-----	>60	---	---	---	Low-----	High-----	Low.
123*: Quartzburg-----	20-40	Soft	---	---	Low-----	Moderate-----	Moderate.
Wagontown-----	40-60	Hard	---	---	Low-----	Moderate-----	Moderate.
124, 125----- Quincy	>60	---	---	---	Low-----	High-----	Low.
126*: Rainey-----	20-40	Hard	---	---	Moderate-----	Moderate-----	Low.
Brownlee-----	>60	---	---	---	Moderate-----	Moderate-----	Moderate.
127*: Rainey-----	20-40	Hard	---	---	Moderate-----	Moderate-----	Low.
Schoolhouse-----	12-20	Hard	---	---	Low-----	Moderate-----	Moderate.
Oland-----	>60	---	---	---	Moderate-----	Moderate-----	Low.
128*: Rainey-----	20-40	Hard	---	---	Moderate-----	Moderate-----	Low.
Van Dusen-----	>60	---	---	---	Moderate-----	Moderate-----	Low.
129*: Rainey-----	20-40	Hard	---	---	Moderate-----	Moderate-----	Low.
Van Dusen-----	>60	---	---	---	Moderate-----	Moderate-----	Low.
Schoolhouse-----	12-20	Hard	---	---	Low-----	Moderate-----	Moderate.
130*: Roanhide-----	20-40	Hard	---	---	Low-----	Moderate-----	Low.
Bauscher-----	>60	---	---	---	Moderate-----	Moderate-----	Moderate.
131*: Roanhide-----	20-40	Hard	---	---	Low-----	Moderate-----	Low.
Bauscher-----	>60	---	---	---	Moderate-----	Moderate-----	Moderate.
Schoolhouse-----	12-20	Hard	---	---	Low-----	Moderate-----	Moderate.
132*: Rock outcrop.  Rubble land.							
133, 134----- Royal	>60	---	---	---	Low-----	High-----	Low.

See footnote at end of table.

TABLE 15.--SOIL FEATURES--Continued

Soil name and map symbol	Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
	Depth	Hardness	Depth	Thickness		Uncoated steel	Concrete
	<u>In</u>		<u>In</u>				
135*, 136*: Royal-----	>60	---	---	---	Low-----	High-----	Low.
Davey-----	>60	---	---	---	Low-----	High-----	Low.
137*: Royal-----	>60	---	---	---	Low-----	High-----	Low.
Shano-----	>60	---	---	---	Low-----	High-----	Low.
Rock outcrop.							
138*: Royal-----	>60	---	---	---	Low-----	High-----	Low.
Truesdale-----	>60	---	20-40	Thin	Low-----	High-----	Low.
139----- Ruckles	10-20	Hard	---	---	Moderate-----	Moderate-----	Low.
140*: Schoolhouse-----	12-20	Hard	---	---	Low-----	Moderate-----	Moderate.
Rock outcrop.							
141----- Scism	>60	---	20-40	Thin	Low-----	High-----	Low.
142----- Scoon	>60	---	8-20	Thick	Low-----	High-----	Low.
143----- Shano	>60	---	---	---	Low-----	High-----	Low.
144*: Shano-----	>60	---	---	---	Low-----	High-----	Low.
Owsel-----	>60	---	---	---	Low-----	High-----	Low.
145*: Shano-----	>60	---	---	---	Low-----	High-----	Low.
Truesdale-----	>60	---	20-40	Thin	Low-----	High-----	Low.
146----- Shoofly	>60	---	9-14	Thick	Low-----	High-----	Low.
147*: Shoofly-----	>60	---	9-14	Thick	Low-----	High-----	Low.
Ornea-----	>60	---	---	---	Low-----	High-----	Low.
148*: Sidlake-----	20-40	Hard	---	---	Low-----	High-----	Low.
Bruncan-----	13-32	Hard	11-20	Thick	Low-----	High-----	Low.
149----- Simonton	>60	---	---	---	Moderate-----	Moderate-----	Moderate.

See footnote at end of table.



TABLE 15.--SOIL FEATURES--Continued

Soil name and map symbol	Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
	Depth	Hardness	Depth	Thickness		Uncoated steel	Concrete
	In		In				
150*: Simonton-----	>60	---	---	---	Moderate-----	Moderate-----	Moderate.
Bauscher-----	>60	---	---	---	Moderate-----	Moderate-----	Moderate.
151*: Simonton-----	>60	---	---	---	Moderate-----	Moderate-----	Moderate.
Elkcreek-----	20-40	Hard	---	---	Moderate-----	Moderate-----	Low.
152*: Stavelly-----	>60	---	---	---	Moderate-----	Moderate-----	Low.
Coski-----	40-60	Hard	---	---	Moderate-----	Moderate-----	Moderate.
Switchback-----	20-40	Soft	---	---	Moderate-----	Moderate-----	Low.
153*: Switchback-----	20-40	Soft	---	---	Moderate-----	Moderate-----	Low.
Grousecreek-----	40-60	Hard	---	---	Moderate-----	Moderate-----	Moderate.
154, 155, 156----- Timmerman	>60	---	---	---	Low-----	High-----	Low.
157*: Trevino-----	8-20	Hard	---	---	Low-----	High-----	Low.
Garbutt-----	>60	---	---	---	Low-----	High-----	Low.
Weso-----	>60	---	---	---	Low-----	High-----	Low.
158*: Trevino-----	8-20	Hard	---	---	Low-----	High-----	Low.
Minidoka-----	>60	---	20-40	Thick	Low-----	High-----	Low.
159*: Trevino-----	8-20	Hard	---	---	Low-----	High-----	Low.
Rock outcrop.							
160*: Trosi-----	>60	---	12-20	Thick	Low-----	High-----	Low.
Chilcott-----	>60	---	20-40	Thick	Low-----	High-----	Low.
Tenmile-----	>60	---	---	---	Low-----	High-----	Low.
161, 162----- Truesdale	>60	---	20-40	Thin	Low-----	High-----	Low.
163----- Typic Torriorthents	>20	Hard	>40	Thin	Low-----	High-----	Low.
164*: Typic Torriorthents-----	>20	Hard	>40	Thin	Low-----	High-----	Low.
Badland.							

See footnote at end of table.

TABLE 15.--SOIL FEATURES--Continued

Soil name and map symbol	Bedrock		Cemented pan		Potential frost action	Risk of corrosion	
	Depth	Hardness	Depth	Thickness		Uncoated steel	Concrete
	<u>In</u>		<u>In</u>				
165*: Typic Torriorthents----	>20	Hard	>40	Thin	Low-----	High-----	Low.
Rubble land.							
166*. Urban land							
167, 168----- Vanderhoff	20-40	Soft	---	---	Low-----	High-----	Low.
169*: Vanderhoff-----	20-40	Soft	---	---	Low-----	High-----	Low.
Buko-----	>60	---	---	---	Low-----	High-----	Low.
Loray-----	>60	---	---	---	Low-----	High-----	Low.
170----- Vining	20-40	Hard	---	---	Low-----	High-----	Low.
171*: Willhill-----	21-40	Hard	---	---	Low-----	High-----	Low.
Cottle-----	11-16	Hard	---	---	Low-----	High-----	Low.
172*, 173*: Xeric Torriorthents----	>20	Hard	---	---	Low-----	High-----	Low.
Xerollic Camborthids----	>20	Hard	>40	Thin	Low-----	High-----	Low.
174----- Yutru	>60	---	---	---	Moderate-----	High-----	Low.

\* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 16.--CLASSIFICATION OF THE SOILS

(An asterisk in the first column indicates that the soil is a taxadjunct to the series. See text for a description of those characteristics of the soil that are outside the range of the series)

Soil name	Family or higher taxonomic class
Abgese-----	Fine-loamy, mixed, mesic Xerollic Haplargids
Arbridge-----	Fine-loamy, mixed, mesic Xerollic Durargids
Badge-----	Loamy-skeletal, mixed, mesic Typic Argixerolls
Bahem-----	Coarse-silty, mixed, mesic Xerollic Calciorrhids
Baldock-----	Fine-loamy, mixed (calcareous), mesic Typic Haplaquepts
*Bauscher-----	Fine-loamy, mixed, frigid Pachic Ultic Argixerolls
Bram-----	Coarse-silty, mixed, mesic Xerollic Calciorrhids
Bramwell-----	Fine-silty, mixed, mesic Aquic Calciorrhids
Brinegar-----	Fine-loamy, mixed, frigid Pachic Ultic Argixerolls
*Broad Canyon-----	Loamy-skeletal, mixed Typic Cryoborolls
Brownlee-----	Fine-loamy, mixed, mesic Ultic Argixerolls
Bruncan-----	Loamy, mixed, mesic, shallow Xerollic Durargids
Buko-----	Coarse-loamy over sandy or sandy-skeletal, mixed, mesic Durixerollic Camborhids
Chardoton-----	Fine, montmorillonitic, mesic Xerollic Paleargids
Chilcott-----	Fine, montmorillonitic, mesic Abruptic Xerollic Durargids
Colthorp-----	Loamy, mixed, mesic, shallow Xerollic Durargids
Coski-----	Coarse-loamy, mixed Typic Cryoborolls
Cottle-----	Loamy-skeletal, mixed, mesic Lithic Xerollic Haplargids
*Cowgil-----	Loamy-skeletal, mixed, mesic Xerollic Haplargids
Davey-----	Sandy, mixed, mesic Xerollic Camborhids
*Day-----	Very fine, montmorillonitic, mesic Typic Chromoxererts
Demast-----	Fine-loamy, mixed Argic Pachic Cryoborolls
Dors-----	Coarse-loamy over sandy or sandy-skeletal, mixed, mesic Typic Calciorrhids
Elijah-----	Fine-silty, mixed, mesic Xerollic Durargids
Elkcreek-----	Fine-loamy, mixed, frigid Ultic Argixerolls
Farrot-----	Fine-loamy, mixed, mesic Typic Argixerolls
Fluvaquents-----	Fluvaquents
Gaib-----	Loamy-skeletal, mixed, frigid Lithic Ultic Argixerolls
Garbutt-----	Coarse-silty, mixed (calcareous), mesic Typic Torriorthents
*Goose Creek-----	Fine-loamy, mixed, mesic Cumulic Haploxerolls
Grandview-----	Fine-loamy, mixed, mesic Typic Calciorrhids
Graylock-----	Sandy-skeletal, mixed Typic Cryorthents
Greenleaf-----	Fine-silty, mixed, mesic Xerollic Haplargids
Grousecreek-----	Loamy-skeletal, mixed, frigid Ultic Haploxerolls
Haplaquolls-----	Haplaquolls
Harahill-----	Fine-loamy, mixed, frigid Pachic Ultic Haploxerolls
Haw-----	Fine-loamy, mixed, mesic Aridic Calcic Argixerolls
Hawsley-----	Mixed, mesic Typic Torripsamments
Hotcreek-----	Loamy-skeletal, mixed, mesic, shallow Xerollic Durargids
Houk-----	Fine, montmorillonitic, frigid Argilaquic Xeric Argialbolls
Immiant-----	Fine-loamy, mixed, mesic Typic Argixerolls
Jacquith-----	Sandy, mixed, mesic Haploxerollic Durorhids
Jenness-----	Coarse-loamy, mixed, nonacid, mesic Xeric Torriorthents
Karcas-----	Fine, montmorillonitic, mesic Entic Chromoxererts
Kunaton-----	Clayey, montmorillonitic, mesic, shallow Abruptic Xerollic Durargids
Lankbush-----	Fine-loamy, mixed, mesic Xerollic Haplargids
Lanktree-----	Fine, montmorillonitic, mesic Xerollic Haplargids
Letha-----	Coarse-loamy, mixed (calcareous), mesic Aeris Halaquepts
Loray-----	Sandy-skeletal, mixed, mesic Typic Calciorrhids
Mazuma-----	Coarse-loamy, mixed (calcareous), mesic Typic Torriorthents
McKeeth-----	Fine-loamy, mixed, mesic Duric Haplargids
Minidoka-----	Coarse-silty, mixed, mesic Xerollic Durorhids
Minveno-----	Loamy, mixed, mesic, shallow Xerollic Durorhids
Monroe-----	Fine-loamy, mixed, mesic Cumulic Haploxerolls
Moran-----	Loamy-skeletal, mixed Typic Cryumbrepts
Oland-----	Loamy-skeletal, mixed, mesic Pachic Ultic Haploxerolls
Ornea-----	Fine-loamy over sandy or sandy-skeletal, mixed, mesic Typic Haplargids
Owsel-----	Fine-silty, mixed, mesic Durixerollic Haplargids
Perazzo-----	Loamy-skeletal, mixed, mesic Typic Haplargids
Power-----	Fine-silty, mixed, mesic Xerollic Haplargids
Purdam-----	Fine-silty, mixed, mesic Haploxerollic Durargids

TABLE 16.--CLASSIFICATION OF THE SOILS--Continued

Soil name	Family or higher taxonomic class
Quartzburg-----	Sandy-skeletal, mixed, frigid Ultic Haploxerolls
Quincy-----	Mixed, mesic Xeric Torripsamments
Rainey-----	Coarse-loamy, mixed, mesic Entic Haploxerolls
Roanhide-----	Coarse-loamy, mixed, frigid Ultic Haploxerolls
Royal-----	Coarse-loamy, mixed, mesic Xerollic Camborthids
*Ruckles-----	Clayey-skeletal, montmorillonitic, mesic Lithic Argixerolls
Schoolhouse-----	Sandy-skeletal, mixed, mesic Lithic Xerorthents
Scism-----	Coarse-silty, mixed, mesic Haploxerollic Durorthids
Scoon-----	Loamy, mixed, mesic, shallow Xerollic Durorthids
Sebree-----	Fine-silty, mixed, mesic Xerollic Nadurargids
Shano-----	Coarse-silty, mixed, mesic Xerollic Camborthids
Shoofly-----	Loamy, mixed, mesic, shallow Typic Durargids
Sidlake-----	Fine-loamy, mixed, mesic Xerollic Haplargids
Simonton-----	Fine-loamy, mixed, frigid Ultic Argixerolls
Stavely-----	Coarse-loamy, mixed, frigid Typic Xerochrepts
Switchback-----	Coarse-loamy, mixed, frigid Typic Xerochrepts
Teewinot-----	Loamy-skeletal, mixed Lithic Cryumbrepts
Tenmile-----	Clayey-skeletal, montmorillonitic, mesic Xerollic Haplargids
*Timmerman-----	Sandy, mixed, mesic Xerollic Camborthids
Trevino-----	Loamy, mixed, mesic Lithic Xerollic Camborthids
Trosi-----	Clayey-skeletal, montmorillonitic, mesic, shallow Xerollic Durargids
Troughs-----	Loamy-skeletal, mixed, mesic, shallow Xerollic Durargids
Truesdale-----	Coarse-loamy, mixed, mesic Haploxerollic Durorthids
Typic Torriorthents-----	Typic Torriorthents
Vanderhoff-----	Coarse-loamy, mixed (calcareous), mesic Typic Torriorthents
Van Dusen-----	Fine-loamy, mixed, mesic Pachic Argixerolls
*Vining-----	Coarse-loamy, mixed, mesic Xerollic Camborthids
Wagontown-----	Sandy-skeletal, mixed, frigid Typic Xerochrepts
Weso-----	Coarse-loamy, mixed, mesic Duric Camborthids
Willhill-----	Loamy-skeletal, mixed, mesic Durixerollic Haplargids
Willho-----	Fine, montmorillonitic, frigid Typic Durixeralfs
Xeric Torriorthents-----	Xeric Torriorthents
Xerofluvents-----	Xerofluvents
Xerollic Camborthids-----	Xerollic Camborthids
Yutru-----	Fine, montmorillonitic, mesic Vertic Xerochrepts

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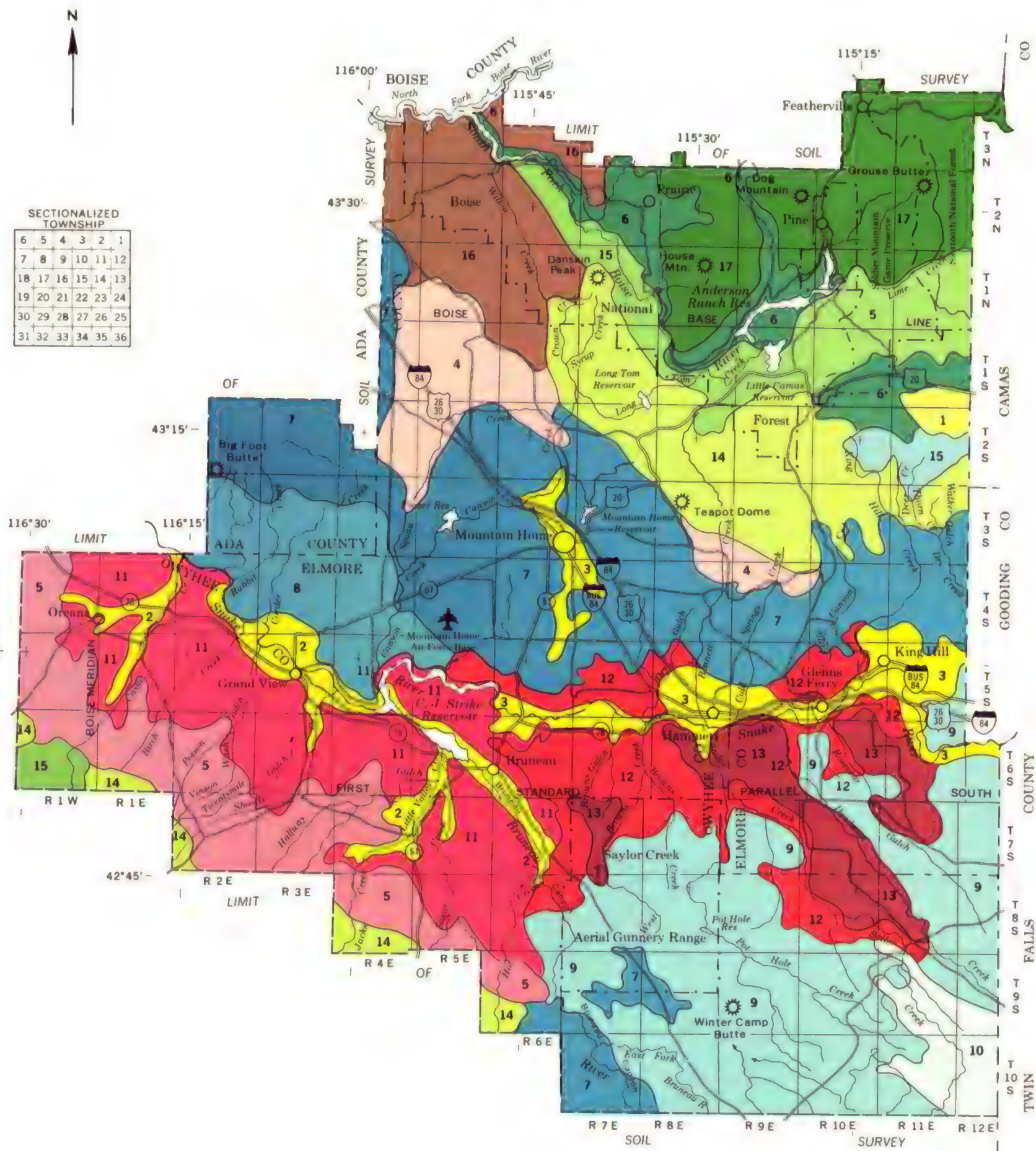
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# SOIL LEGEND

## SOILS ON STREAM TERRACES

- 1** Brinegar-Houk: Nearly level, very deep, somewhat poorly drained and moderately well drained soils; on low stream terraces
- 2** Bram-Mazuma-Grandview: Nearly level, very deep, somewhat poorly drained to well drained soils; on low and medium stream terraces
- 3** Timmerman-Royal-Buko: Nearly level to strongly sloping, very deep, well drained and somewhat excessively drained soils; on medium and high stream terraces

## SOILS ON DISSECTED PIEDMONTS

- 4** Lankbush-Chilcott-Lanktree: Nearly level to strongly sloping, moderately deep and very deep, well drained soils; on alluvial plains and terraces
- 5** Shoofly-Omea-Abgese: Nearly level to steep, shallow and very deep, well drained soils; on alluvial plains and fan terraces

## SOILS ON BASALT PLAINS, IN CANYONS, AND ON TERRACES

- 6** Simonton-Gaib-Harahill: Gently sloping to steep, shallow, moderately deep, and very deep, well drained soils; on basalt plains and canyonsides
- 7** Colthorp-Chilcott-Kunaton: Nearly level to strongly sloping, shallow and moderately deep, well drained soils; on basalt plains
- 8** Trevino-Garbutt-Weso: Nearly level to strongly sloping, shallow and very deep, well drained soils; on basalt plains
- 9** Purdam-Owsel-Shano: Nearly level to strongly sloping, moderately deep and very deep, well drained soils; on basalt plains
- 10** Sidlake-Bruncan-Owsel: Nearly level to strongly sloping, shallow, moderately deep, and very deep, well drained soils; on basalt plains and terraces

## SOILS ON DISSECTED TERRACES AND ON PLAINS

- 11** Typic Torriorthents-Mazuma-Vanderhoff: Nearly level to very steep, moderately deep to very deep, well drained to excessively drained soils; on dissected terraces
- 12** Royal-Buko-Davey: Nearly level to steep, very deep, well drained and somewhat excessively drained soils; on dissected terraces
- 13** Truesdale-Scoon-Elijah: Nearly level to strongly sloping, shallow and moderately deep, well drained soils; on terraces and plains

## SOILS ON VOLCANIC FOOTHILLS

- 14** Elk Creek-Immiant-Gaib: Gently sloping to steep, shallow and moderately deep, well drained soils; on foothills

## SOILS ON GRANITIC MOUNTAINS AND FOOTHILLS

- 15** Roanhide-Bauscher: Strongly sloping to steep, moderately deep and very deep, well drained soils; on hills
- 16** Rainey-Oland-Schoolhouse: Moderately steep to steep, shallow, moderately deep, and very deep, well drained and excessively drained soils; on hills
- 17** Broad Canyon-Switchback-Quartzburg: Strongly sloping to very steep, moderately deep and deep, well drained and excessively drained soils; on mountainsides

UNITED STATES DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE  
FOREST SERVICE  
UNITED STATES DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
UNIVERSITY OF IDAHO  
COLLEGE OF AGRICULTURE  
IDAHO SOIL CONSERVATION COMMISSION

## GENERAL SOIL MAP

ELMORE COUNTY AREA, IDAHO  
PARTS OF ELMORE, OWYHEE, AND ADA COUNTIES

COMPILED 1990

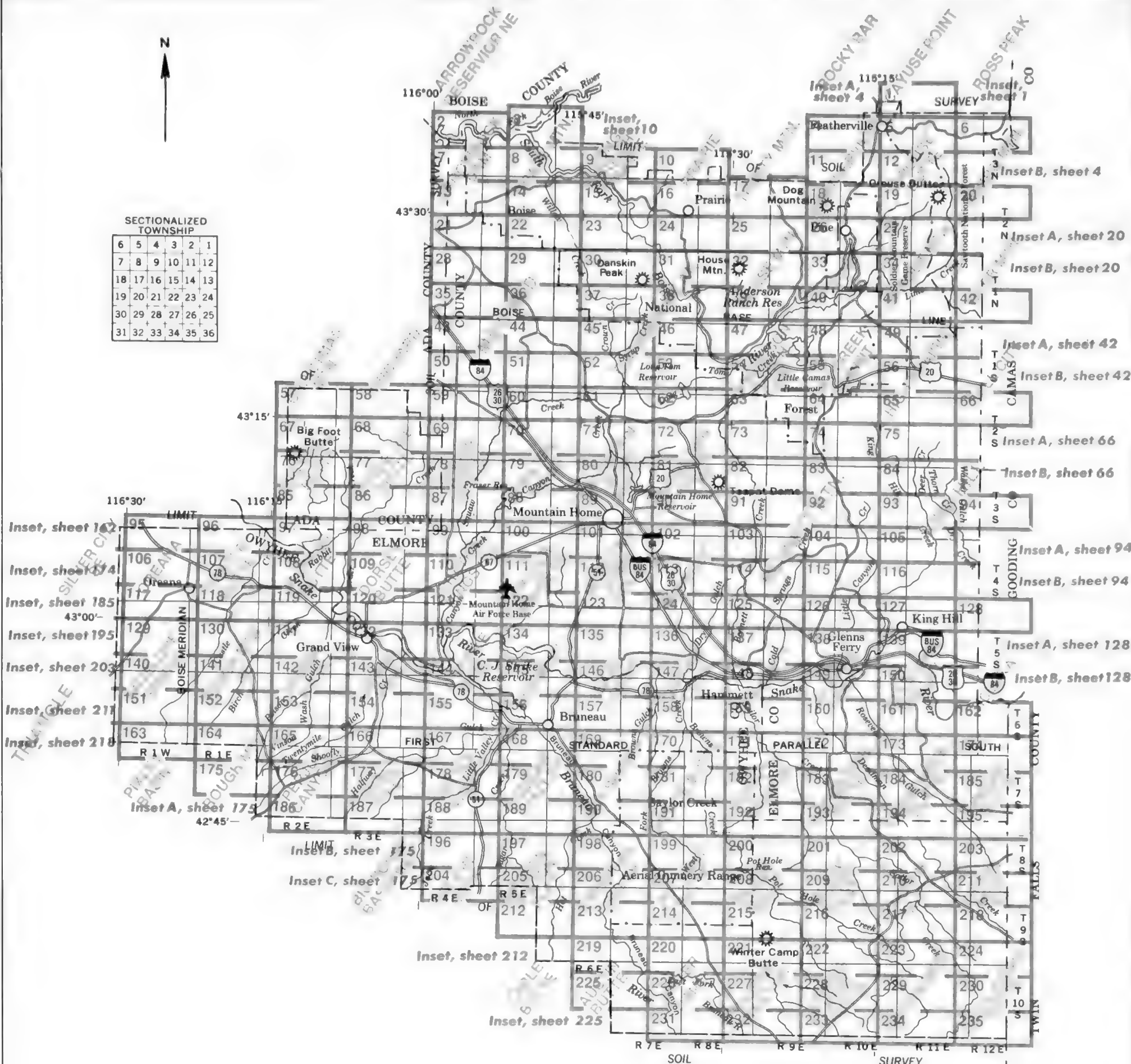


Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.



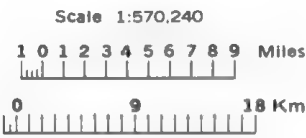


SECTIONALIZED TOWNSHIP															
6	5	4	3	2	1										
7	8	9	10	11	12										
18	17	16	15	14	13										
19	20	21	22	23	24										
30	29	28	27	26	25										
31	32	33	34	35	36										



**Original text from each individual map sheet read:**  
This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974-1975 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

INDEX TO MAP SHEETS  
ELMORE COUNTY AREA, IDAHO  
PARTS OF ELMORE, OWYHEE, AND ADA COUNTIES





SOIL LEGEND

CONVENTIONAL AND SPECIAL  
SYMBOLS LEGEND

SYMBOL	NAME	SYMBOL	NAME
1	Abgees loamy sand, 2 to 8 percent slopes	90	Lankbush sandy loam, 0 to 4 percent slopes
2	Abgees loamy sand, 8 to 40 percent slopes	91	Lankbush-Lankcree complex, 4 to 30 percent slopes
3	Abgees sandy loam, 0 to 4 percent slopes	92	Lankbush-Jenness association, 0 to 4 percent slopes
4	Arbuckle fine sandy loam, 1 to 4 percent slopes	93	Lankcree loam, 0 to 4 percent slopes
5	Arbuckle-Bulo complex, 1 to 8 percent slopes	94	Lankcree-Chilcote loams, 0 to 12 percent slopes
6	Badger-Innsmant-Rubble land complex, 20 to 70 percent slopes	95	Lathe fine sandy loam, drained, 0 to 4 percent slopes
7	Bahem silt loam, 0 to 4 percent slopes	96	Lathe loam, 0 to 2 percent slopes
8	Bahem silt loam, 4 to 8 percent slopes	97	Lathe-Baldock loams, 0 to 2 percent slopes
9	Bahem-Mindoka-Trevino complex, 0 to 4 percent slopes	98	Loray gravelly fine sandy loam, 0 to 12 percent slopes
10	Baldock loam, 0 to 2 percent slopes	99	Loray-Dors complex, 8 to 20 percent slopes
11	Bram silt loam, 0 to 2 percent slopes	100	Mazuma fine sandy loam, 0 to 4 percent slopes
12	Bramwell silty clay loam, 0 to 1 percent slopes	101	Mazuma-Hawesley complex, 0 to 12 percent slopes
13	Brnegar loam, 0 to 4 percent slopes	102	McKeeth gravelly loam, 2 to 12 percent slopes
14	Broad Canyon-Coski complex, 30 to 60 percent slopes	103	Mindoka-Merveno silt loams, 0 to 4 percent slopes
15	Broad Canyon-Grousecreek association, 20 to 70 percent slopes	104	Mindoka-Merveno silt loams, 4 to 8 percent slopes
16	Broad Canyon-Switchback association, 30 to 70 percent slopes	105	Merveno silt loam, 0 to 4 percent slopes
17	Brownlee loam, 2 to 12 percent slopes	106	Merveno silt loam, 4 to 8 percent slopes
18	Brownlee-Innsmant complex, 2 to 20 percent slopes	107	Merveno-Mindoka stony silt loams, 0 to 8 percent slopes
19	Brownlee-Van Dusen loams, 2 to 20 percent slopes	108	Monroe-Jenness complex, 0 to 2 percent slopes
20	Bruncan-Troughs complex, 0 to 5 percent slopes	109	Monroe-Goose Creek association, 0 to 2 percent slopes
21	Bulo fine sandy loam, 1 to 4 percent slopes	110	Moran-Tweennot-Coski complex, 10 to 50 percent slopes
22	Bulo fine sandy loam, 4 to 12 percent slopes	111	Oland gravelly loam, 2 to 20 percent slopes
23	Chardoton silt loam, 0 to 4 percent slopes	112	Omea gravelly loam, 2 to 8 percent slopes
24	Chilcote silt loam, 0 to 4 percent slopes	113	Oswel-Purdum complex, 1 to 12 percent slopes
25	Chilcote very stony silty clay loam, 0 to 12 percent slopes	114	Perazzo-Omea-Abgees complex, 12 to 40 percent slopes
26	Chilcote-Day-Rock outcrop complex, 2 to 15 percent slopes	115	Pis, gravel
27	Chilcote-Elijah silt loams, 0 to 12 percent slopes	116	Power silt loam, 1 to 4 percent slopes
28	Chilcote-Kunston-Chardoton complex, 2 to 12 percent slopes	117	Power-Chardoton complex, 0 to 4 percent slopes
29	Chilcote-Power complex, 0 to 8 percent slopes	118	Power-Jenness complex, 0 to 2 percent slopes
30	Elmwood sand	119	Power-Purdum silt loams, 0 to 1 percent slopes
31	Colthorp stony silt loam, 0 to 8 percent slopes	120	Purdum silt loam, 0 to 4 percent slopes
32	Colthorp-Chilcote silt loams, 0 to 8 percent slopes	121	Purdum silt loam, 4 to 8 percent slopes
33	Colthorp-Kunston complex, 0 to 8 percent slopes	122	Purdum-Sabree-Oswel complex, 0 to 8 percent slopes
34	Colthorp-Kunston-Rubble land complex, 8 to 20 percent slopes	123	Quartzburg-Wagontown complex, 35 to 70 percent slopes
35	Colthorp-Merveno stony silt loams, 0 to 8 percent slopes	124	Quincy fine sand, 0 to 12 percent slopes
36	Colthorp-Rock complex, 4 to 20 percent slopes	125	Quincy loamy fine sand, 12 to 30 percent slopes
37	Coski-Broad Canyon complex, 15 to 60 percent slopes	126	Raney-Brownlee association, 10 to 50 percent slopes
38	Cottle-Sidlake complex, 4 to 30 percent slopes	127	Raney-Schoolhouse-Oland association, 30 to 70 percent slopes
39	Cottle-Trevino-Rock outcrop complex, 8 to 30 percent slopes	128	Raney-Van Dusen association, 10 to 30 percent slopes
40	Cottle-Wilho complex, 2 to 25 percent slopes	129	Raney-Van Dusen-Schoolhouse association, 30 to 60 percent slopes
41	Cowgill extremely stony sandy loam, 4 to 20 percent slopes	130	Ranohide-Bauscher association, 10 to 30 percent slopes
42	Cowgill extremely stony fine sandy loam, 0 to 4 percent slopes	131	Ranohide-Bauscher-Schoolhouse association, 10 to 60 percent slopes
43	Cowgill-Rubble land-Rock outcrop association, 25 to 50 percent slopes	132	Rock outcrop-Rubble land association
44	Devey loamy sand, 4 to 12 percent slopes	133	Royal fine sandy loam, 0 to 4 percent slopes
45	Devey loamy fine sand, 0 to 4 percent slopes	134	Royal fine sandy loam, 4 to 12 percent slopes
46	Devey Bulo complex, 1 to 12 percent slopes	135	Royal-Devey complex, 0 to 12 percent slopes
47	Devey-Mazuma complex, 12 to 40 percent slopes	136	Royal-Devey complex, 12 to 40 percent slopes
48	Devey-Quincy complex, 1 to 12 percent slopes	137	Royal-Shano-Rock outcrop complex, 0 to 20 percent slopes
49	Devey-Vanderhoff complex, 1 to 4 percent slopes	138	Royal-Truesdale fine sandy loams, 0 to 4 percent slopes
50	Dors fine sandy loam, 0 to 4 percent slopes	139	Ruckles extremely stony loam, 1 to 8 percent slopes
51	Dors gravelly fine sandy loam, 4 to 12 percent slopes	140	Schoolhouse-Rock outcrop complex, 40 to 90 percent slopes
52	Dors-Loray complex, 0 to 4 percent slopes	141	Scam silt loam, 0 to 4 percent slopes
53	Elmwood sand	142	Scoon very fine sandy loam, 0 to 4 percent slopes
54	Elijah silt loam, 0 to 4 percent slopes	143	Shano loam, 1 to 12 percent slopes
55	Elijah silt loam, 4 to 12 percent slopes	144	Shano-Oswel complex, 0 to 12 percent slopes
56	Elijah-Purdum silt loams, 0 to 8 percent slopes	145	Shano-Truesdale fine sandy loams, 0 to 12 percent slopes
57	Elk creek-Omea complex, 10 to 50 percent slopes	146	Shoofly loam, 0 to 4 percent slopes
58	Elk creek-Gab-Simonton complex, 12 to 30 percent slopes	147	Shoofly-Omea complex, 2 to 12 percent slopes
59	Farrot-Haw complex, 20 to 50 percent slopes	148	Sidlake-Bruncan complex, 1 to 8 percent slopes
60	Fluvsquents, channelled	149	Simonton loam, 2 to 12 percent slopes
61	Gab-Rubble land complex, 40 to 80 percent slopes	150	Simonton-Bauscher loams, 2 to 20 percent slopes
62	Gab-Elk creek-Rock outcrop association, 2 to 20 percent slopes	151	Simonton-Elk creek complex, 10 to 50 percent slopes
63	Gab-Elk creek-Simonton association, 20 to 60 percent slopes	152	Stavely-Coski-Switchback complex, 10 to 60 percent slopes
64	Gab-Simonton-Rock outcrop association, 2 to 12 percent slopes	153	Switchback-Grousecreek complex, 20 to 60 percent slopes
65	Garbutt silt loam, 0 to 4 percent slopes	154	Timmerman loamy sand, 2 to 20 percent slopes, extremely bouldery
66	Garbutt silt loam, 4 to 8 percent slopes	155	Timmerman sandy loam, 0 to 4 percent slopes
67	Garbutt-Weso complex, 0 to 2 percent slopes	156	Timmerman sandy loam, 4 to 12 percent slopes
68	Garbutt-Weso-Trevino complex, 2 to 8 percent slopes	157	Trevino-Garbutt-Weso complex, 2 to 8 percent slopes
69	Garbutt-Trevino association, 4 to 20 percent slopes	158	Trevino-Mindoka complex, 8 to 30 percent slopes
70	Grandview loam, 0 to 4 percent slopes	159	Trevino-Rock outcrop complex, 0 to 8 percent slopes
71	Grandview, drained-Garbutt silt loams, 0 to 4 percent slopes	160	Tross-Chilcote-Tennille gravelly loams, 2 to 20 percent slopes
72	Graylock-Broad Canyon complex, 40 to 70 percent slopes	161	Truesdale fine sandy loam, 0 to 4 percent slopes
73	Greenleaf very fine sandy loam, 0 to 4 percent slopes	162	Truesdale fine sandy loam, 4 to 12 percent slopes
74	Greenleaf-Shano complex, 4 to 12 percent slopes	163	Typic tomorthents, 4 to 20 percent slopes
75	Haglaquille-Xerolfluents complex, 0 to 2 percent slopes	164	Typic tomorthents-Badland complex, 20 to 70 percent slopes
76	Harshill Wilho association, 0 to 12 percent slopes	165	Typic tomorthents-Rubble land complex, 20 to 70 percent slopes
77	Haw-Farrot complex, 4 to 20 percent slopes	166	
78	Haw-Lankbush complex, 4 to 20 percent slopes	167	Vanderhoff fine sandy loam, 0 to 4 percent slopes
79	Hawesley loamy sand, 0 to 12 percent slopes	168	Vanderhoff fine sandy loam, 4 to 12 percent slopes
80	Hotcreek-Troughs association, 1 to 15 percent slopes	169	Vanderhoff-Bulo-Loray complex, 2 to 20 percent slopes
81	Houk silty clay loam, 0 to 2 percent slopes	170	Vining very stony fine sandy loam, 0 to 8 percent slopes
82	Innsmant gravelly loam, 0 to 12 percent slopes	171	Wilho-Cottle association, 2 to 25 percent slopes
83	Innsmant-Ruddies-Rock outcrop complex, 4 to 20 percent slopes	172	Xeric Tomorthents-Xerollic Camborthids complex, 20 to 70 percent slopes
84	Jacquith loamy sand, 4 to 12 percent slopes	173	Xeric Tomorthents and Xerollic Camborthids, 8 to 20 percent slopes
85	Jacquith loamy fine sand, 1 to 8 percent slopes	174	Yulue very stony silty clay, 0 to 12 percent slopes
86	Jacquith-Quincy loamy sands, 0 to 12 percent slopes		
87	Kercal-Day-Rock outcrop complex, 2 to 15 percent slopes		
88	Kunston silt loam, 0 to 4 percent slopes		
89	Kunston-Chilcote silt loams, 2 to 12 percent slopes		

CULTURAL FEATURES

BOUNDARIES

National, state or province	— — — —
County or parish	— — — —
Minor civil division	— — — —
Reservation (national forest or park, state forest or park, and large airport)	— — — —
Land grant	— — — —
Limit of soil survey (label)	— — — —
Field sheet matchline and neatline	— — — —

AD HOC BOUNDARY (label)

Small airport, airfield, park, oilfield, cemetery, or flood pool	
--	--

STATE COORDINATE TICK

LAND DIVISION CORNER (sections and land grants)	
---	--

ROADS

Divided (median shown if scale permits)	
Other roads	
Trail	

ROAD EMBLEM & DESIGNATIONS

Interstate	
Federal	
County, farm or ranch	

RAILROAD

POWER TRANSMISSION LINE (normally not shown)

PIPE LINE (normally not shown)

FENCE (normally not shown)

LEVEES

Without road	
With road	
With railroad	

DAMS

Large (to scale)	
Medium or Small	

PITS

Gravel pit	
Mine or quarry	

MISCELLANEOUS CULTURAL FEATURES

Farmstead, house (omit in urban areas)	
Church	
School	
Indian mound (label)	
Located object (label)	
Tank (label)	
Wells, oil or gas	
Windmill	
Kitchen midden	

WATER FEATURES

DRAINAGE

Perennial, double line	
Perennial, single line	
Intermittent	
Drainage end	
Canals or ditches	
Double-line (label)	
Drainage and/or irrigation	

LAKES, PONDS AND RESERVOIRS

Perennial	
Intermittent	

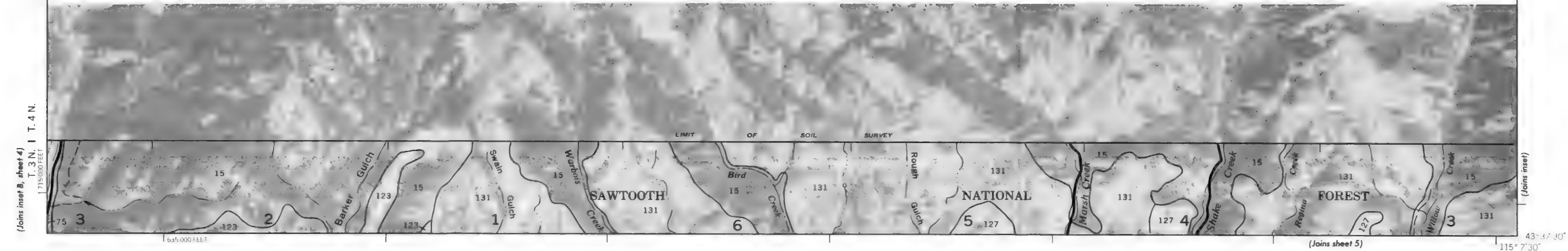
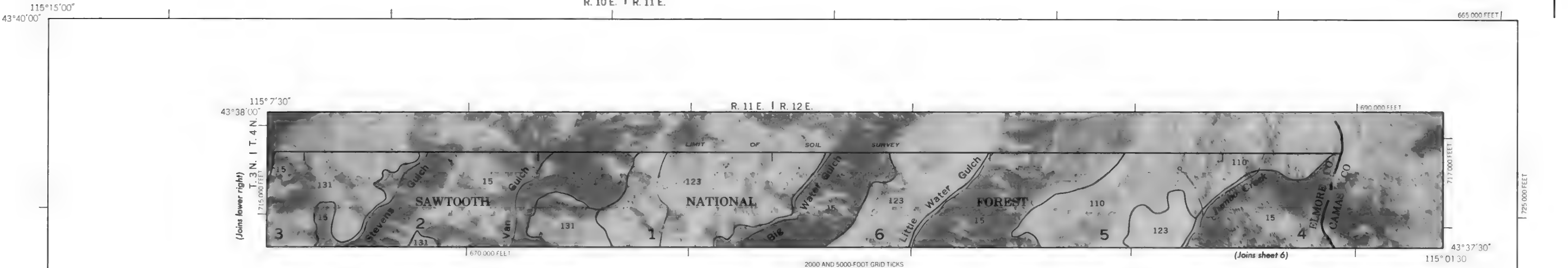
MISCELLANEOUS WATER FEATURES

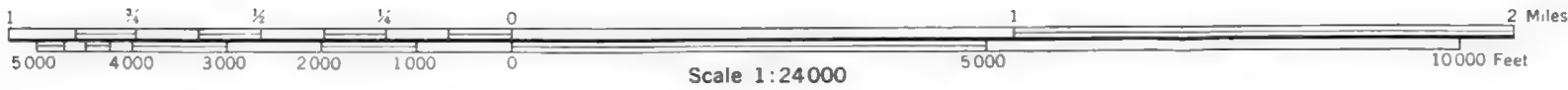
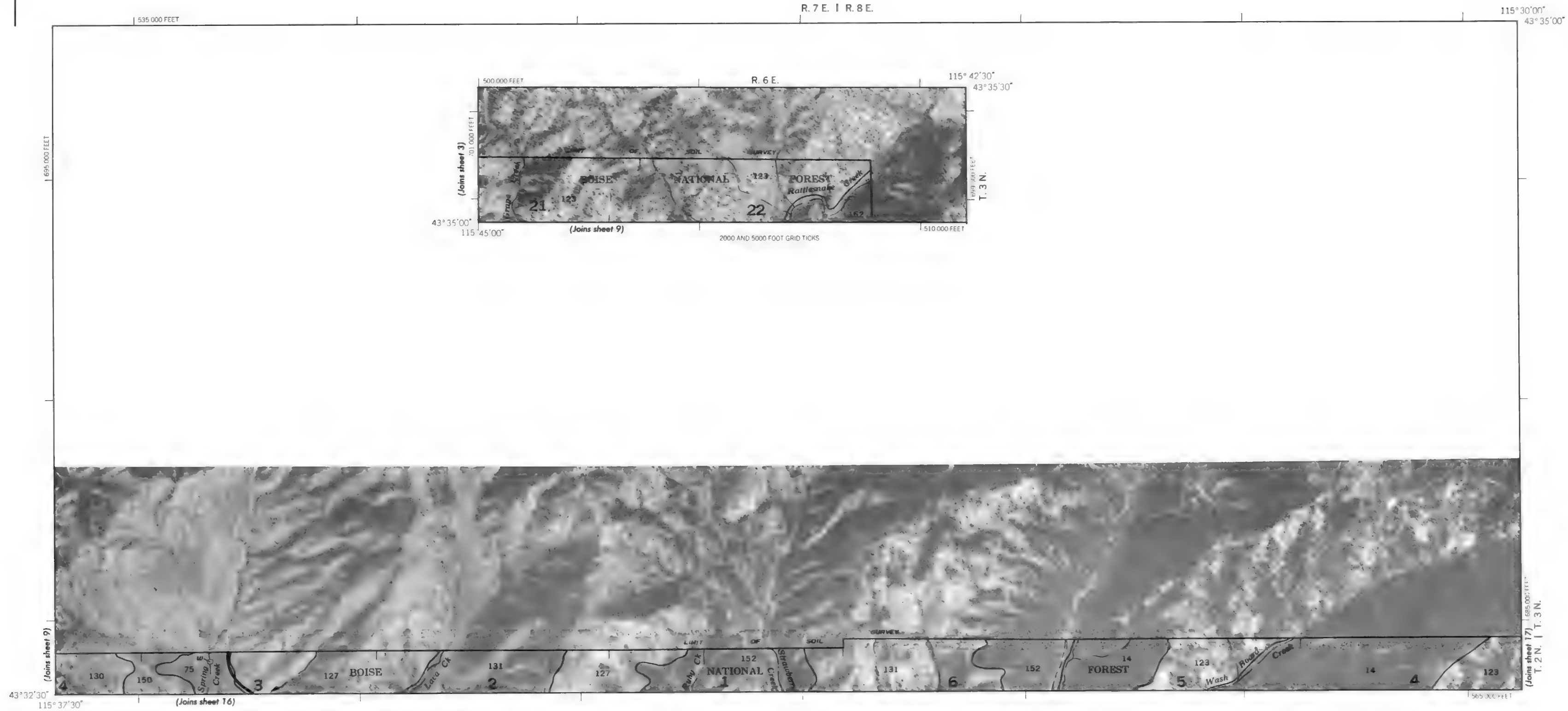
Marsh or swamp	
Spring	
Well, artesian	
Well, irrigation	
Wet spot	

SPECIAL SYMBOLS FOR  
SOIL SURVEY

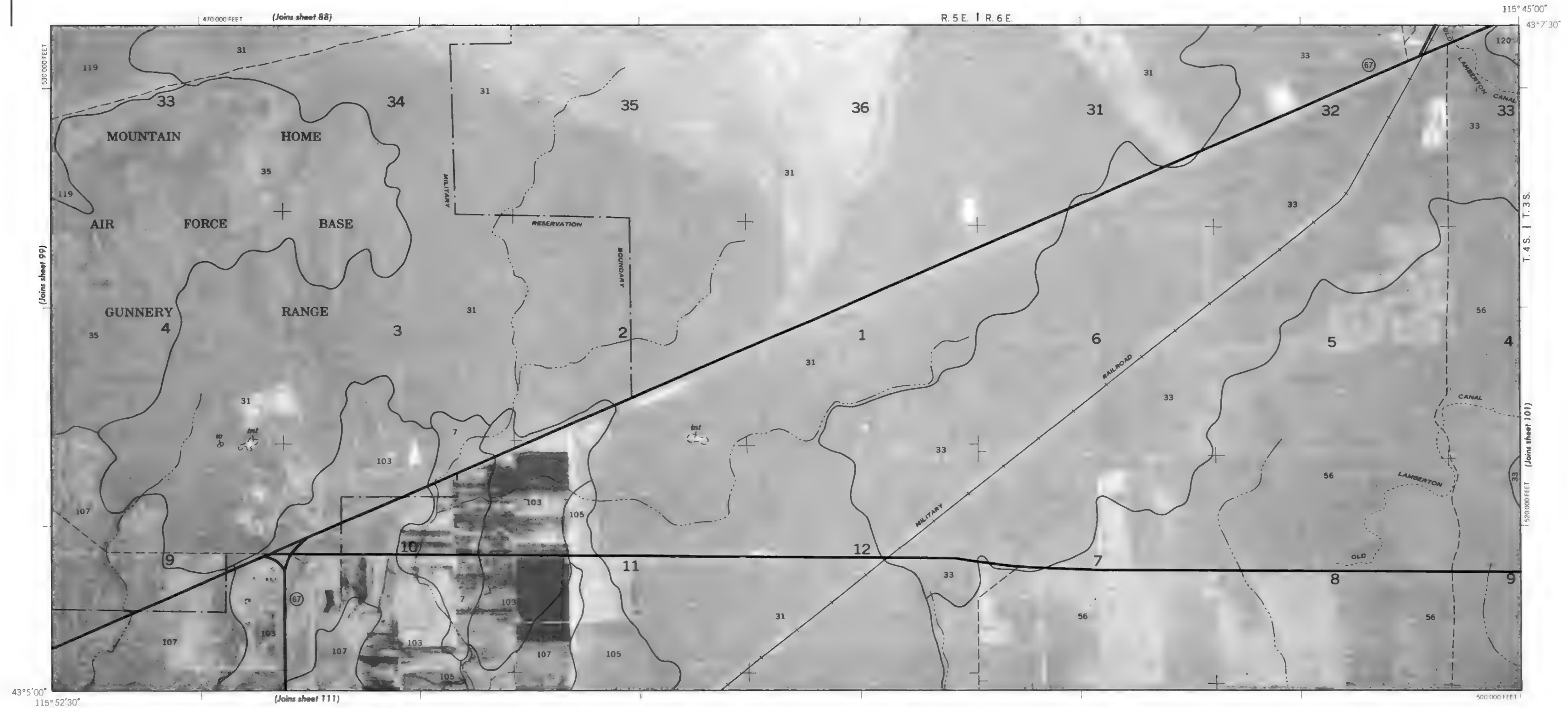
SOIL DELINEATIONS AND SYMBOLS

ESCRPMENTS	
Bedrock (points down slope)	
Other than bedrock (points down slope)	
SHORT STEEP SLOPE	
GULCH	
DEPRESSION OR SINK	
SOIL SAMPLE (normally not shown)	
MISCELLANEOUS	
Blowout	
Clay spot	
Gravelly spot	
Gumbo, slick or scabby spot (sodic)	
Dumps and other similar non soil areas	
Prominent hill or peak	
Rock outcrop (includes sandstone and shale)	
Saline spot	
Sandy spot	
Severely eroded spot	
Slide or slip (tips point upslope)	
Stony spot, very stony spot	
>15% Cobbles on surface	
Shallow hardpan	
Bouldery	
V. Bouldery	
Shallow soils (T: bedrock, alluvial gravels, laminated lake sediments)	
Land leveled spot	



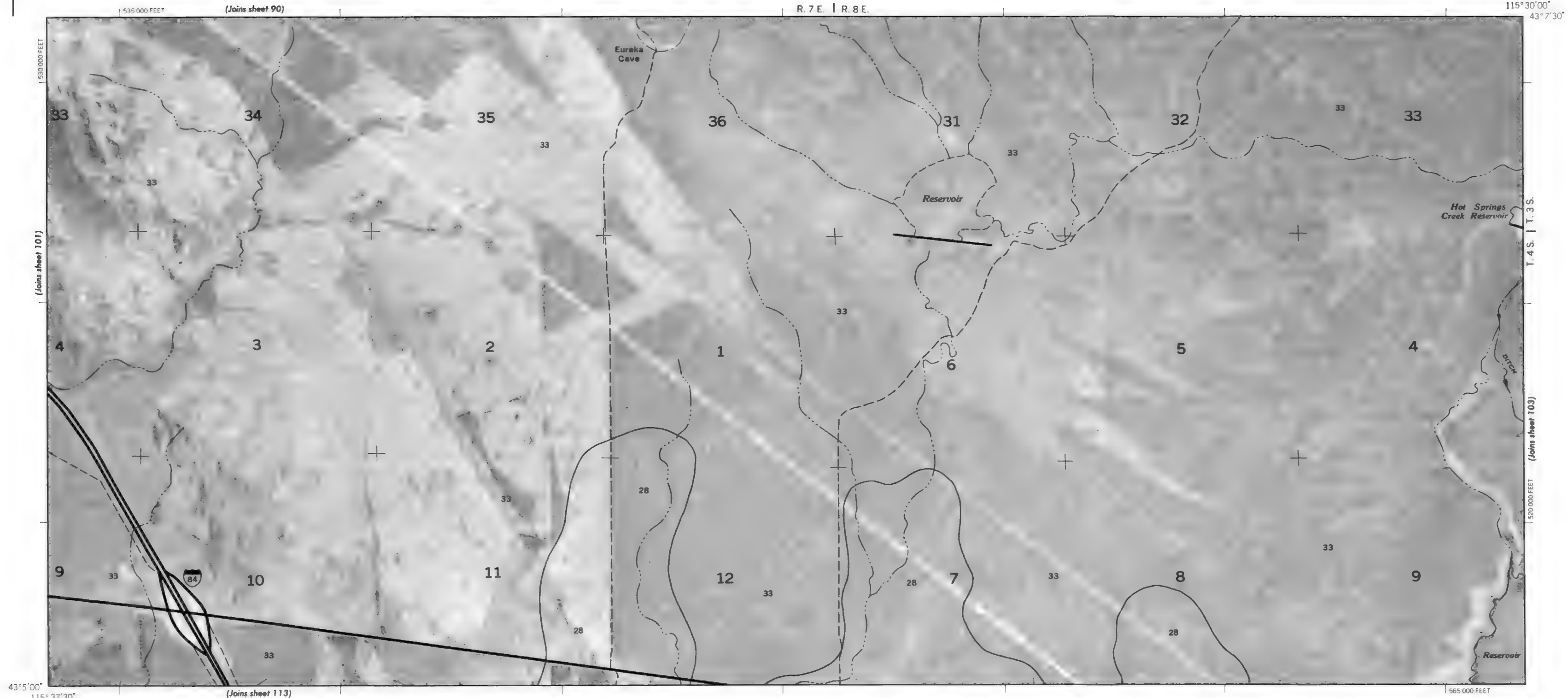


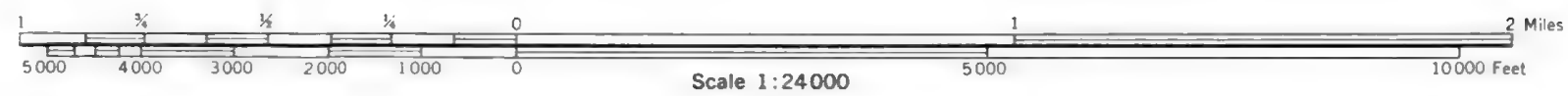
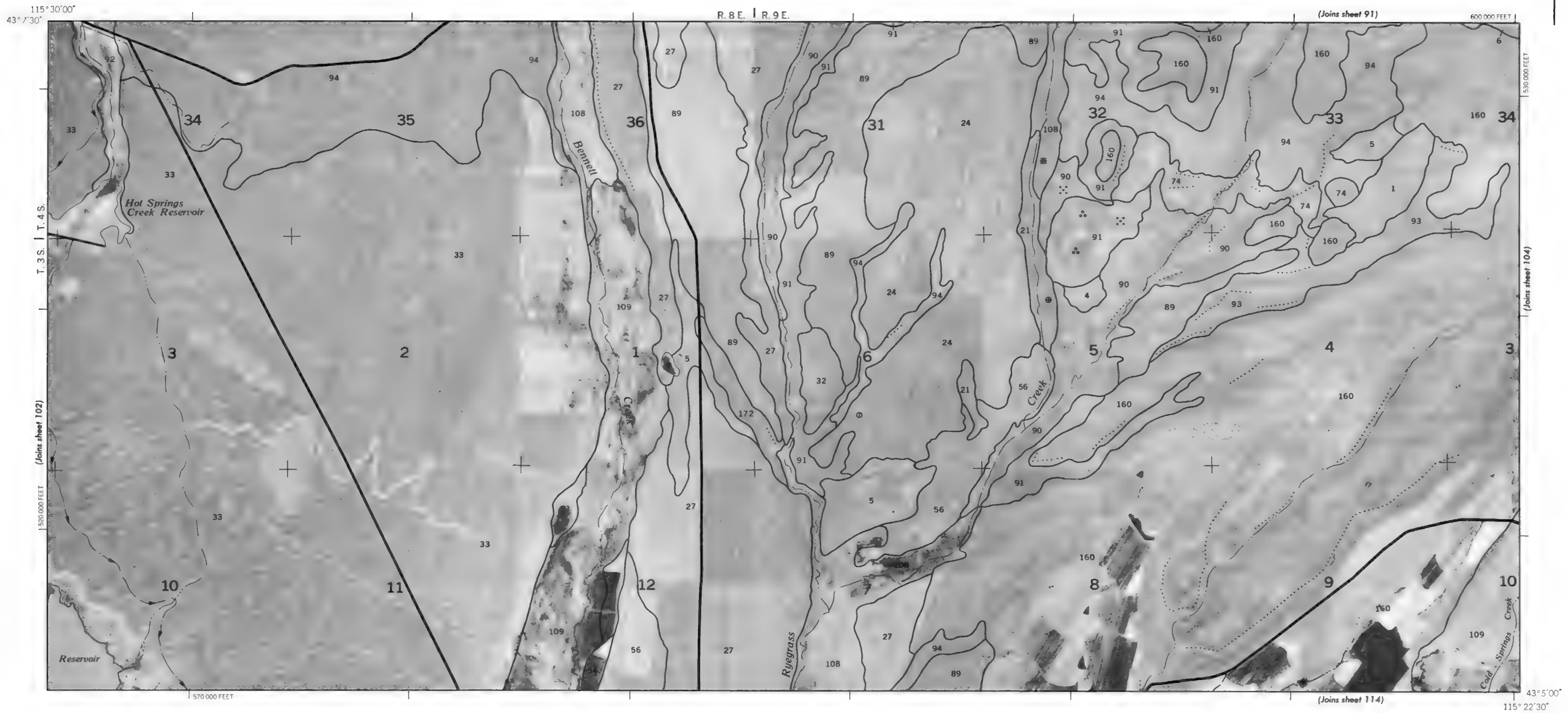
100













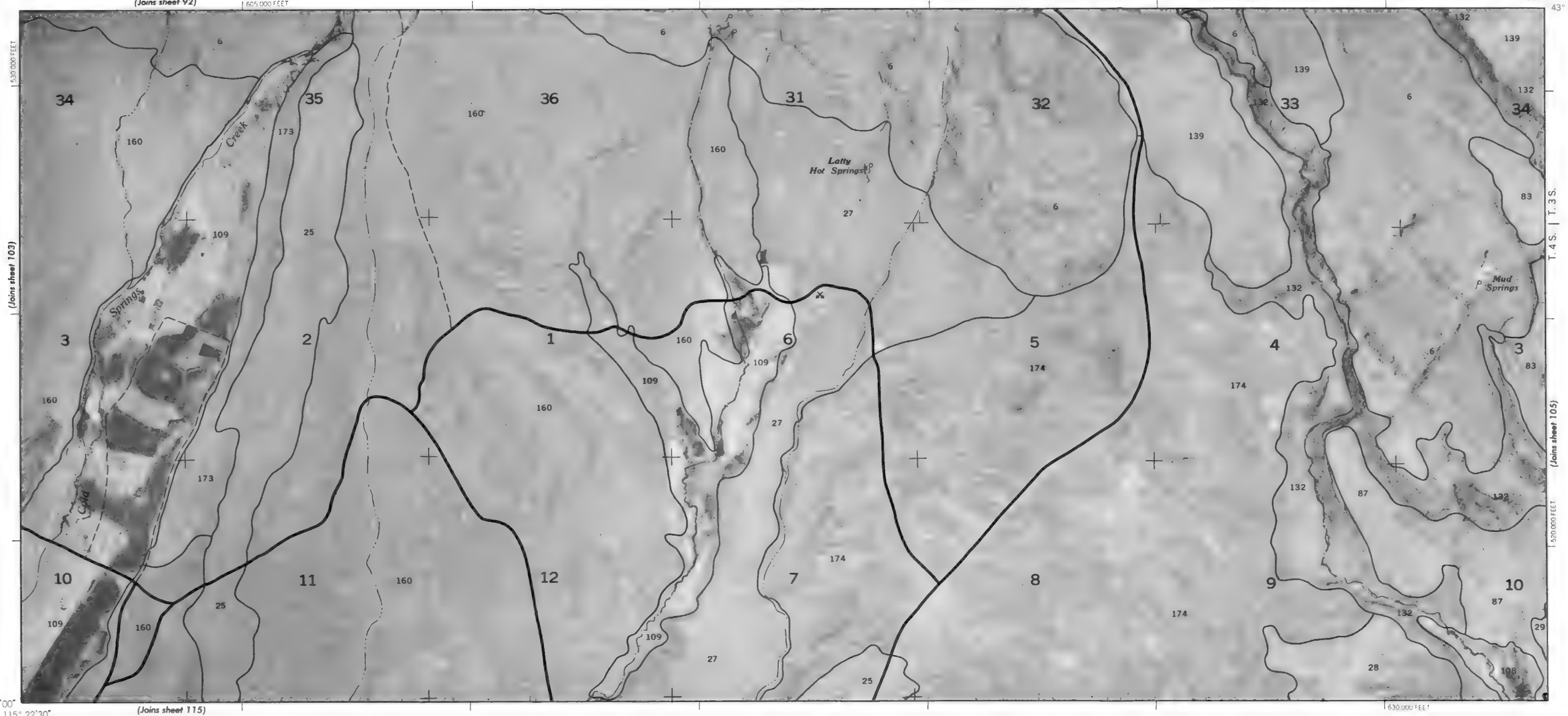
104



(Joins sheet 92)

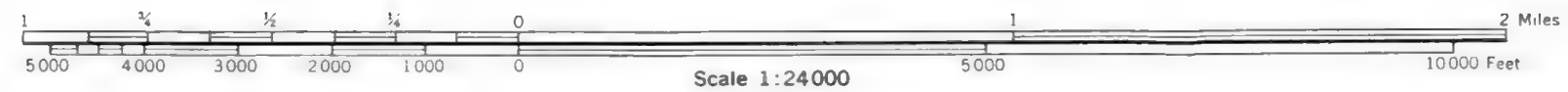
R. 9 E. | R. 10 E.

115° 15' 00"  
43° 7' 30"

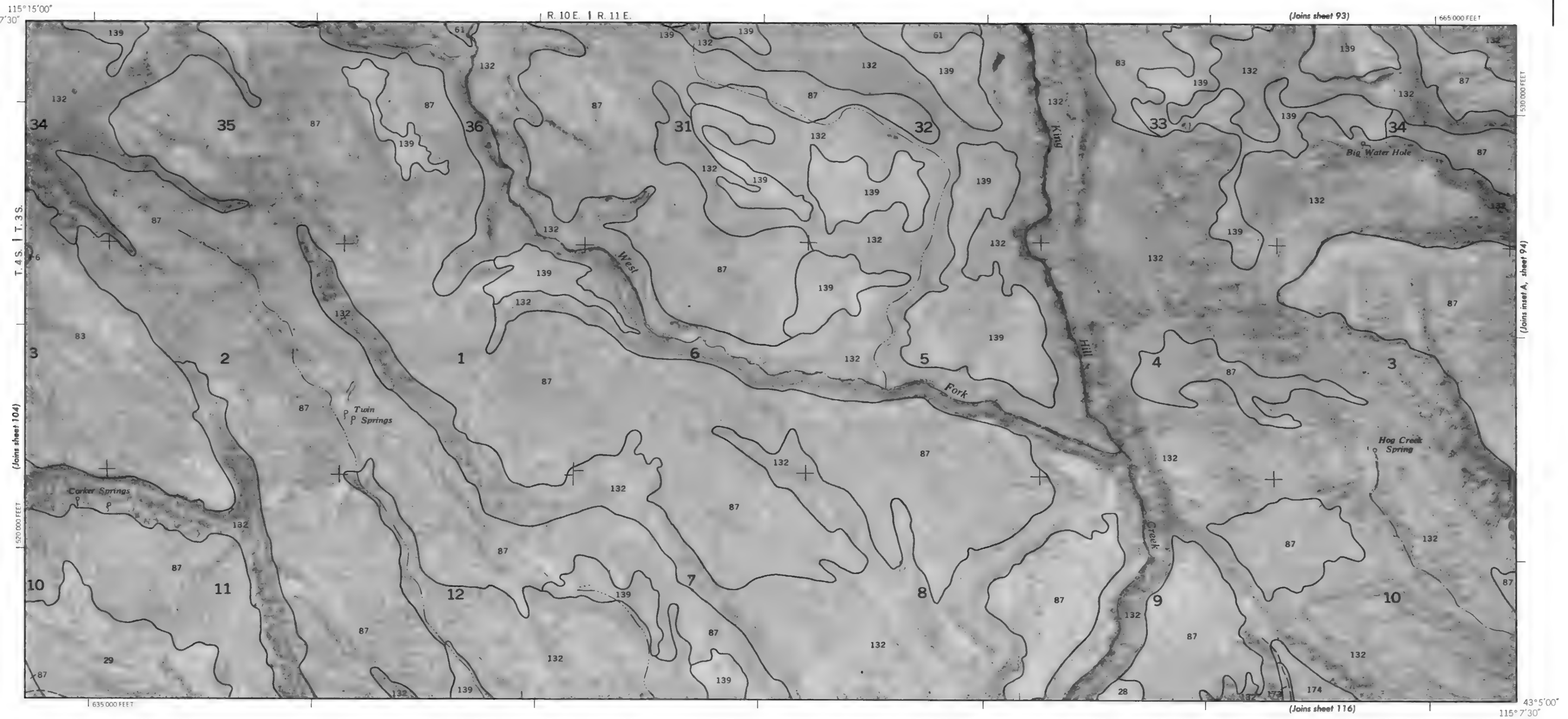


(Joins sheet 115)

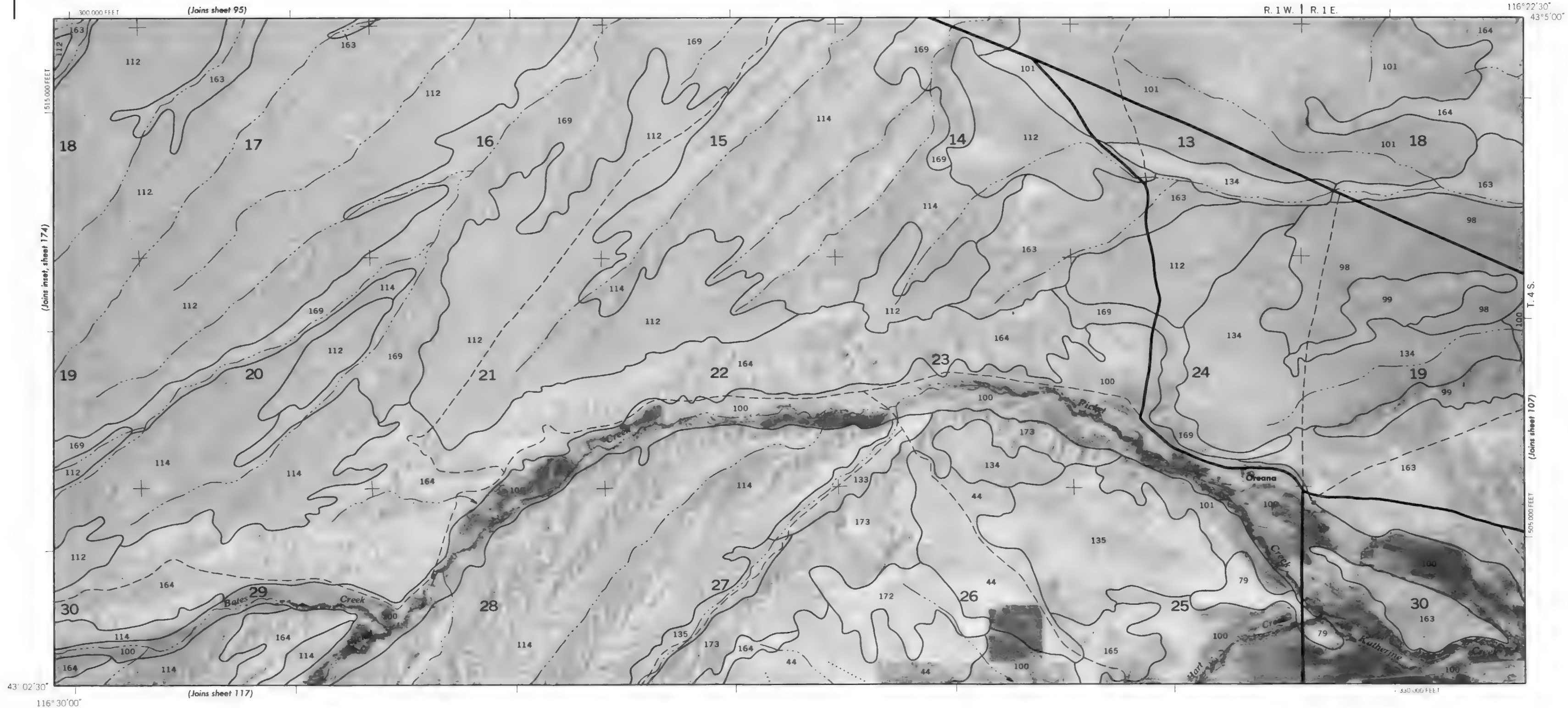
(Joins sheet 105)

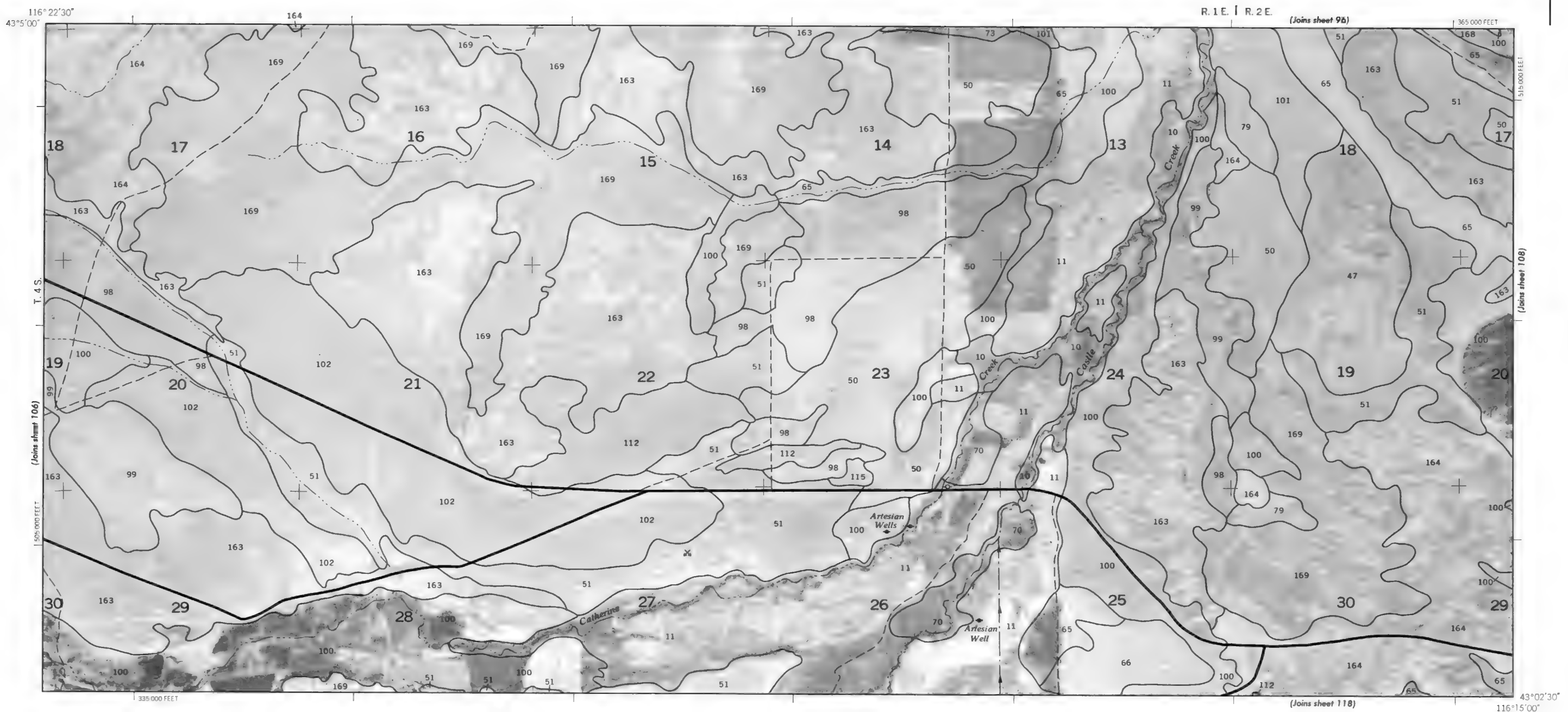






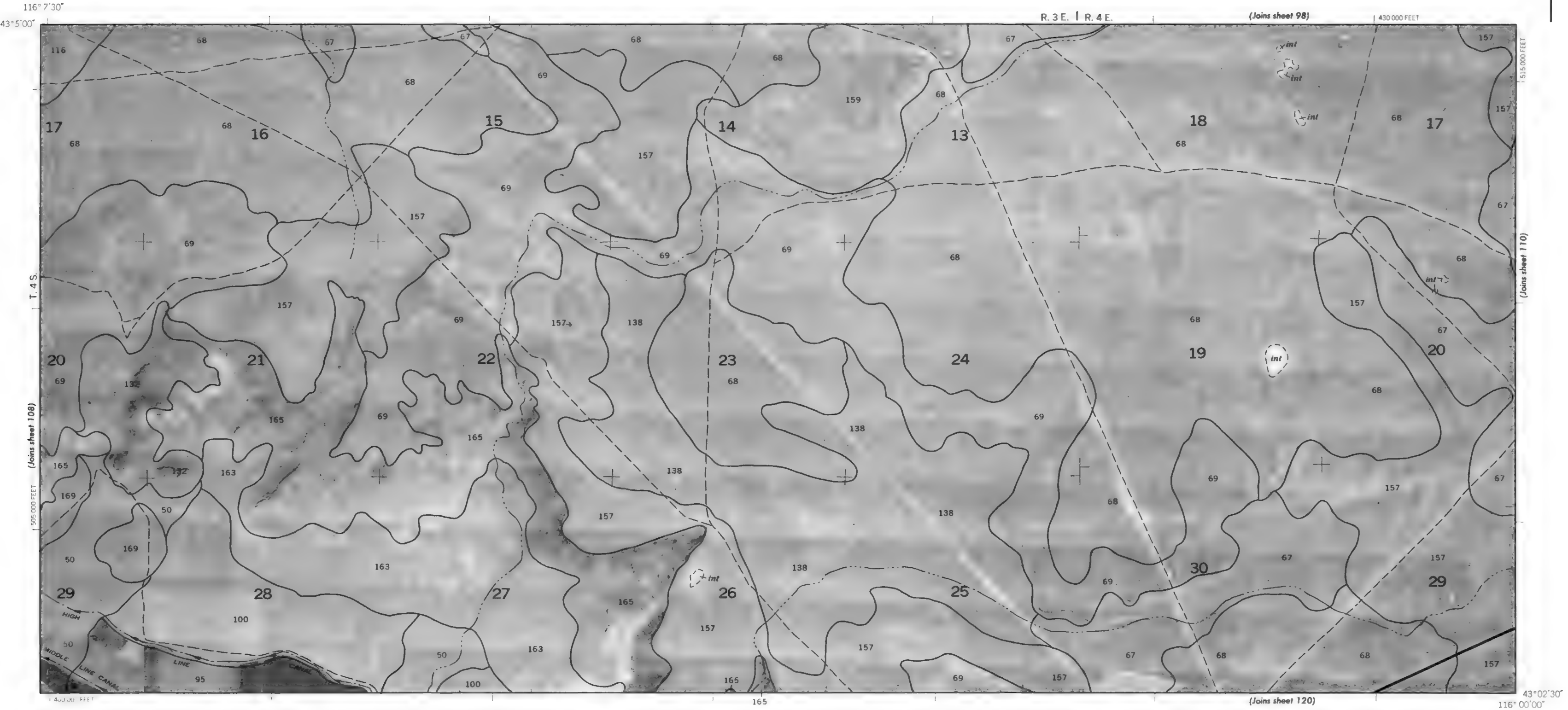
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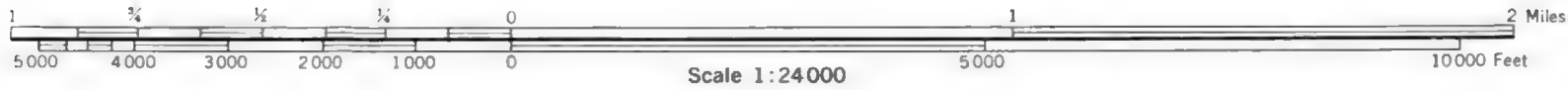
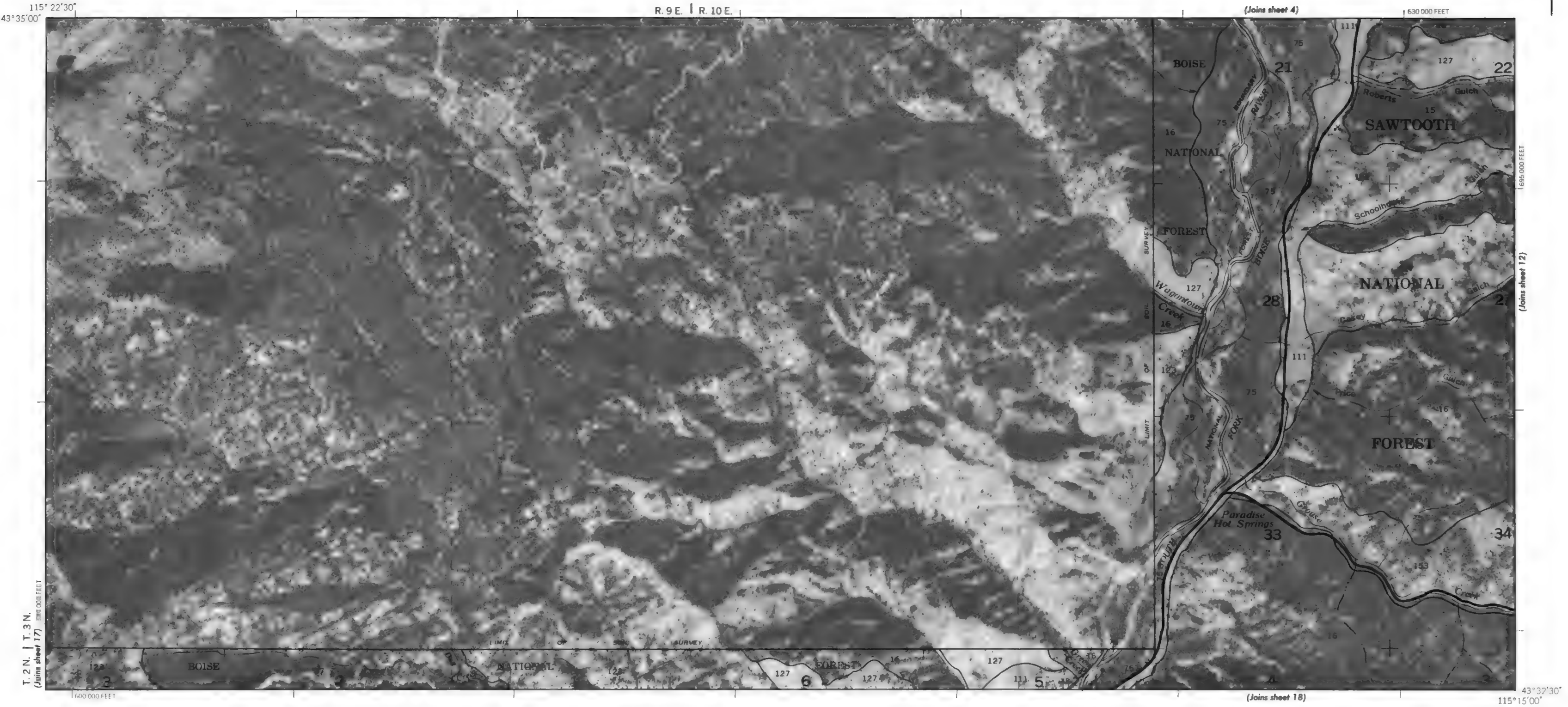




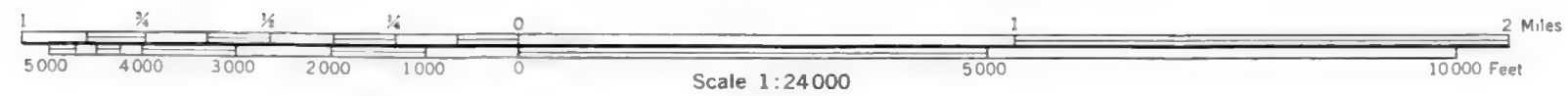
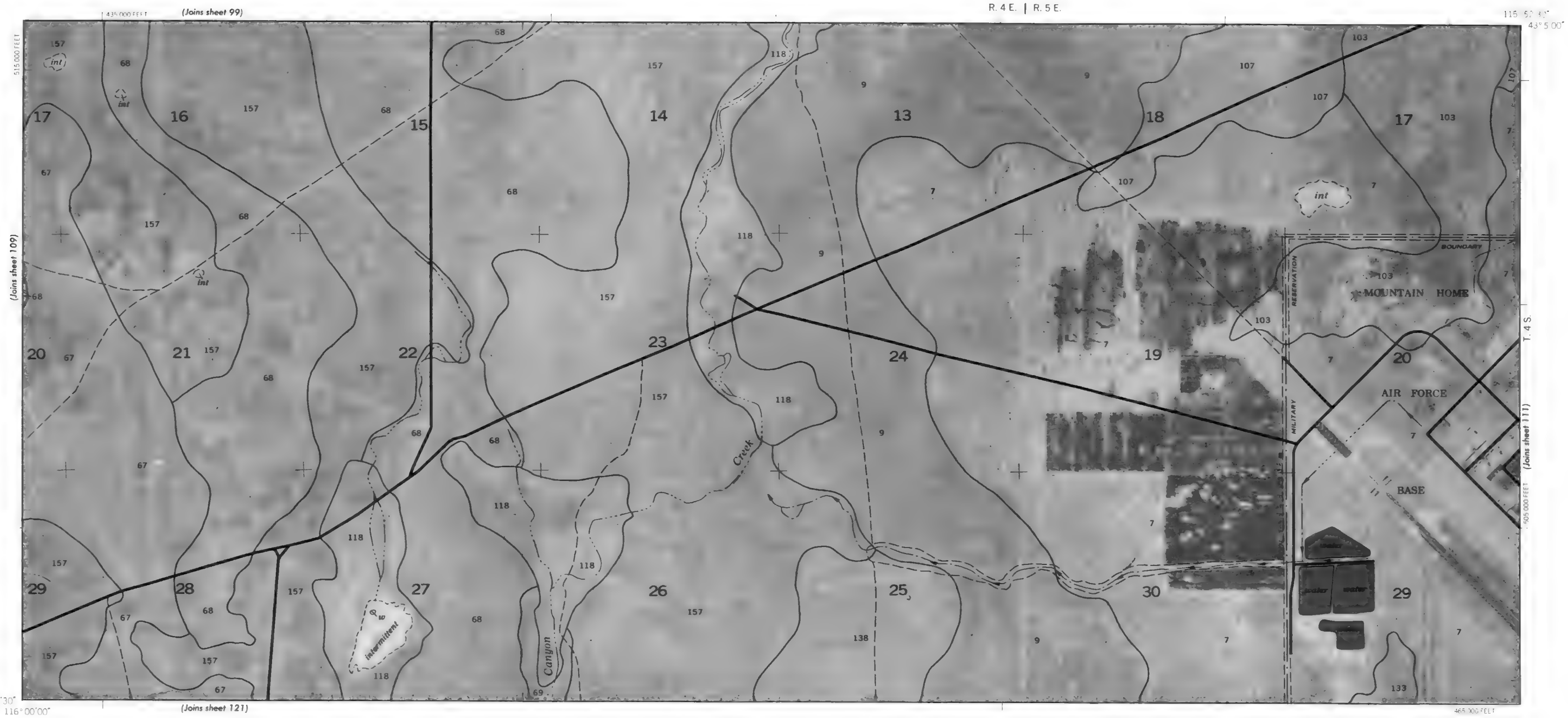


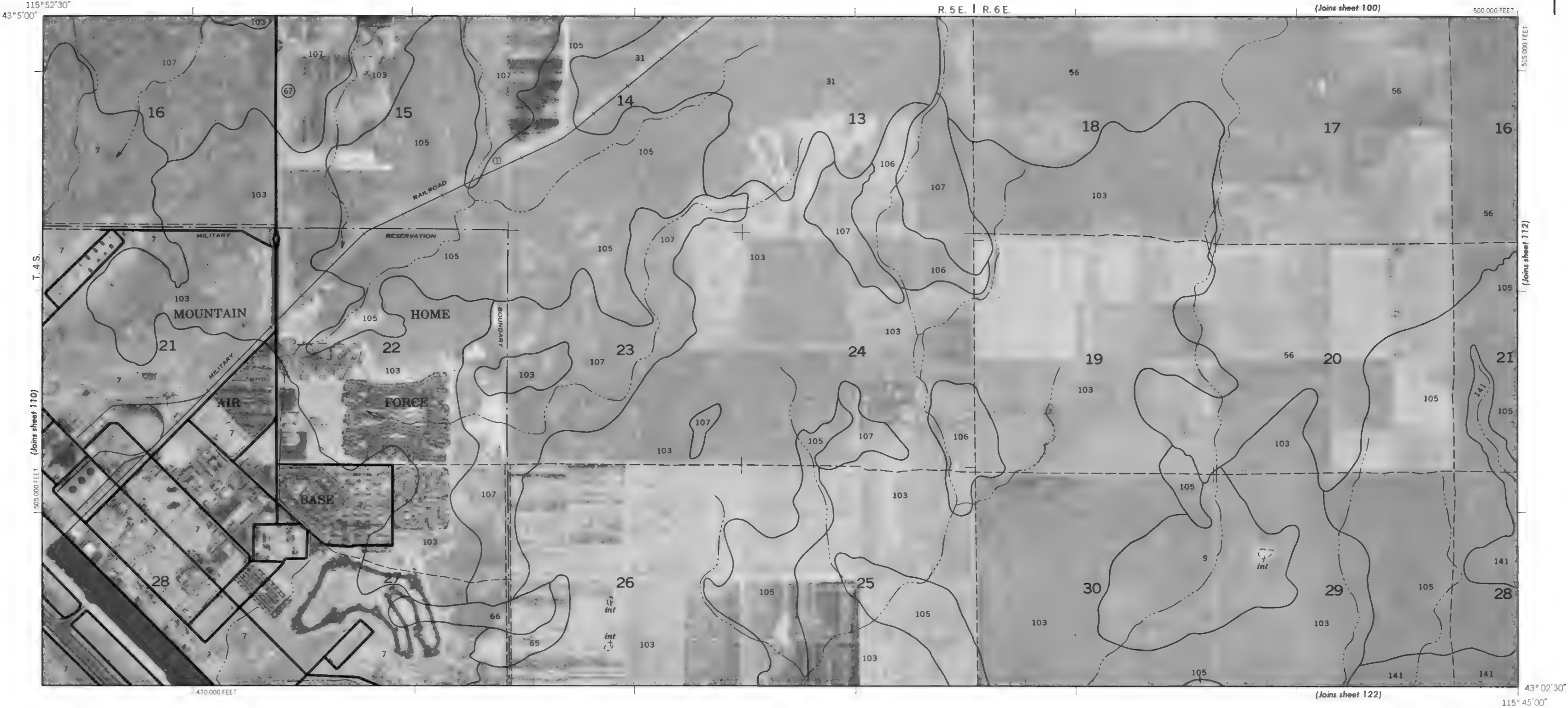










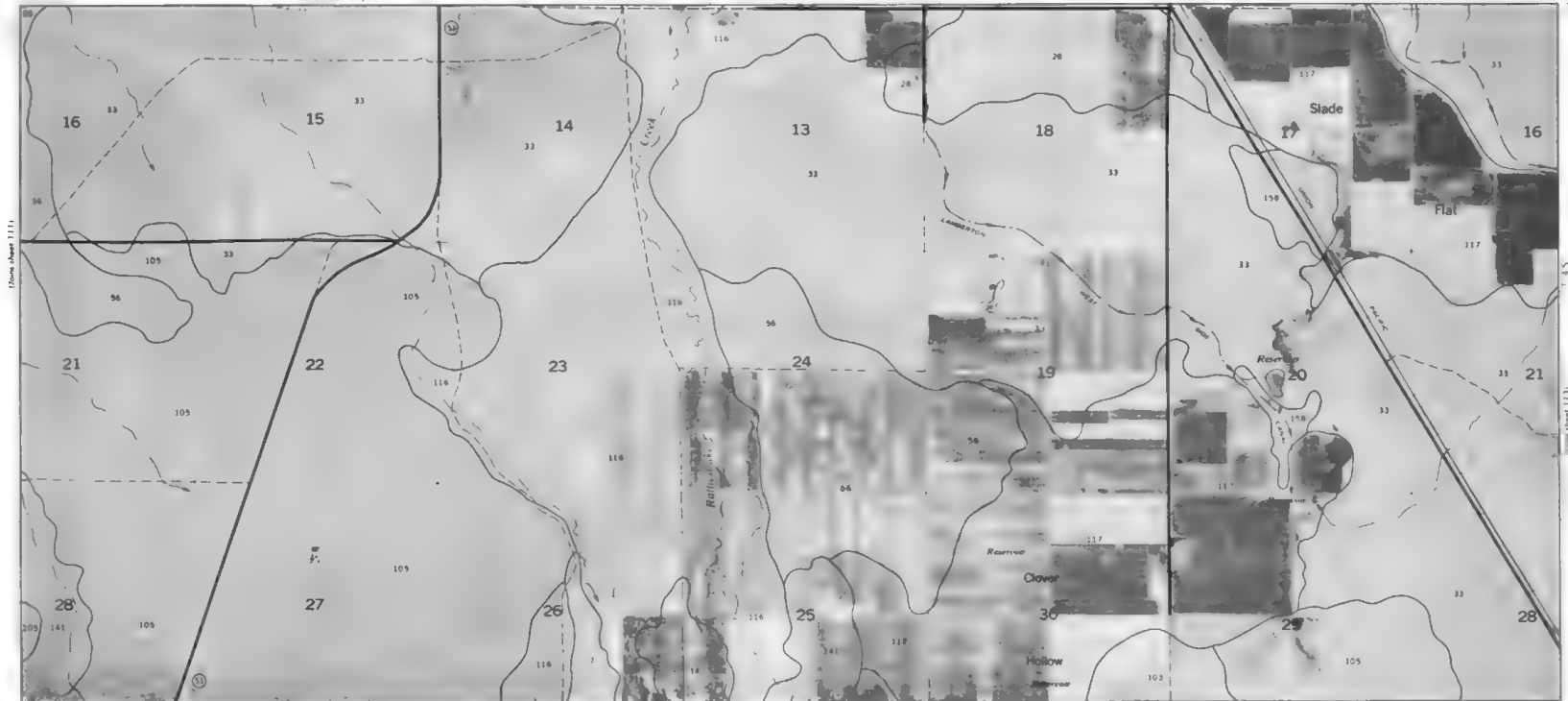




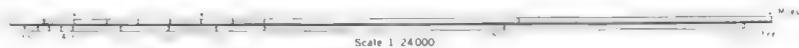


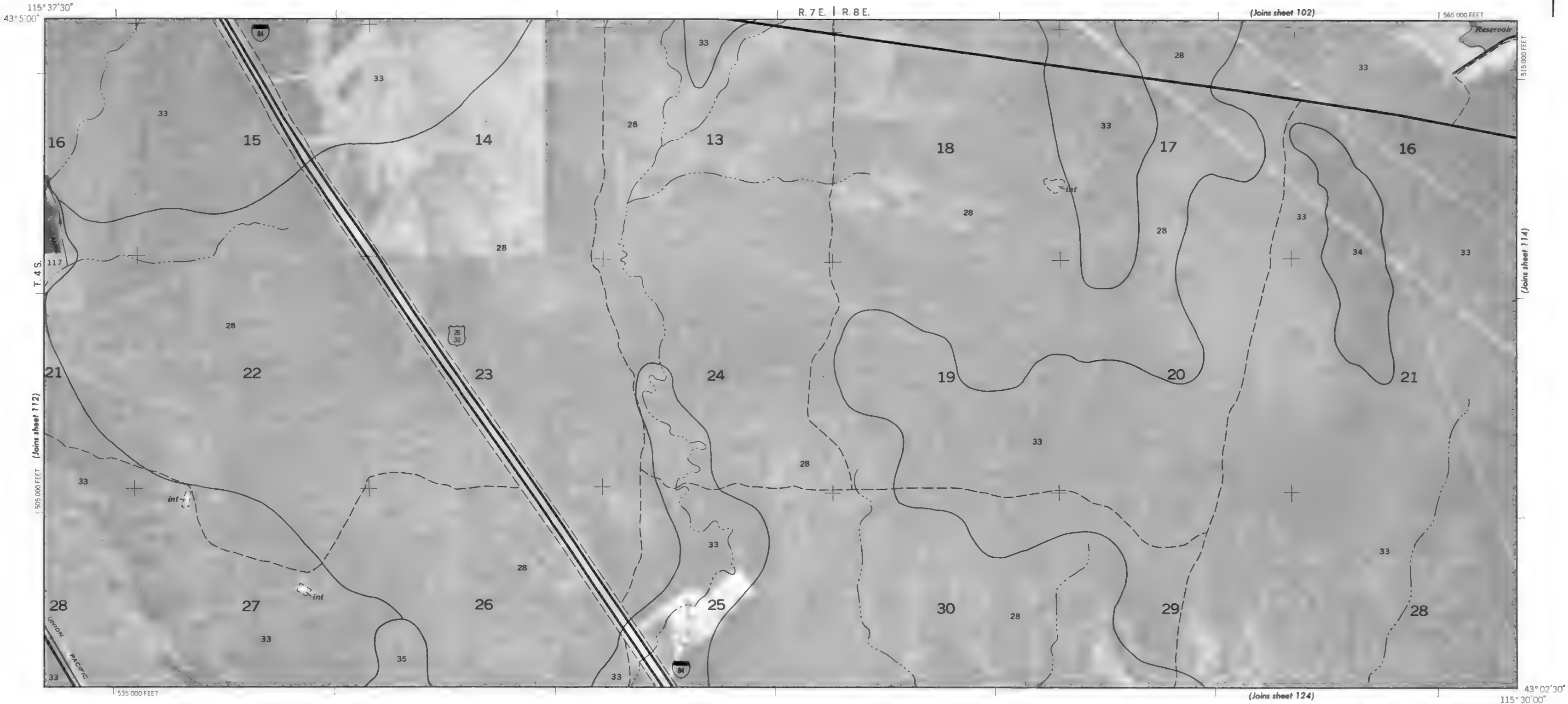
REF 112

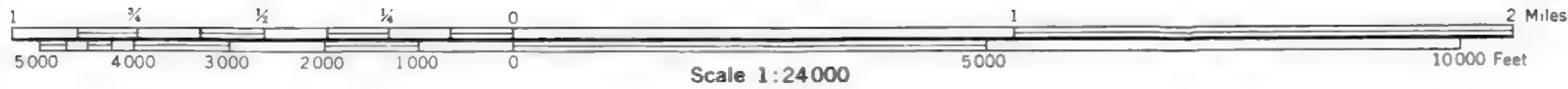
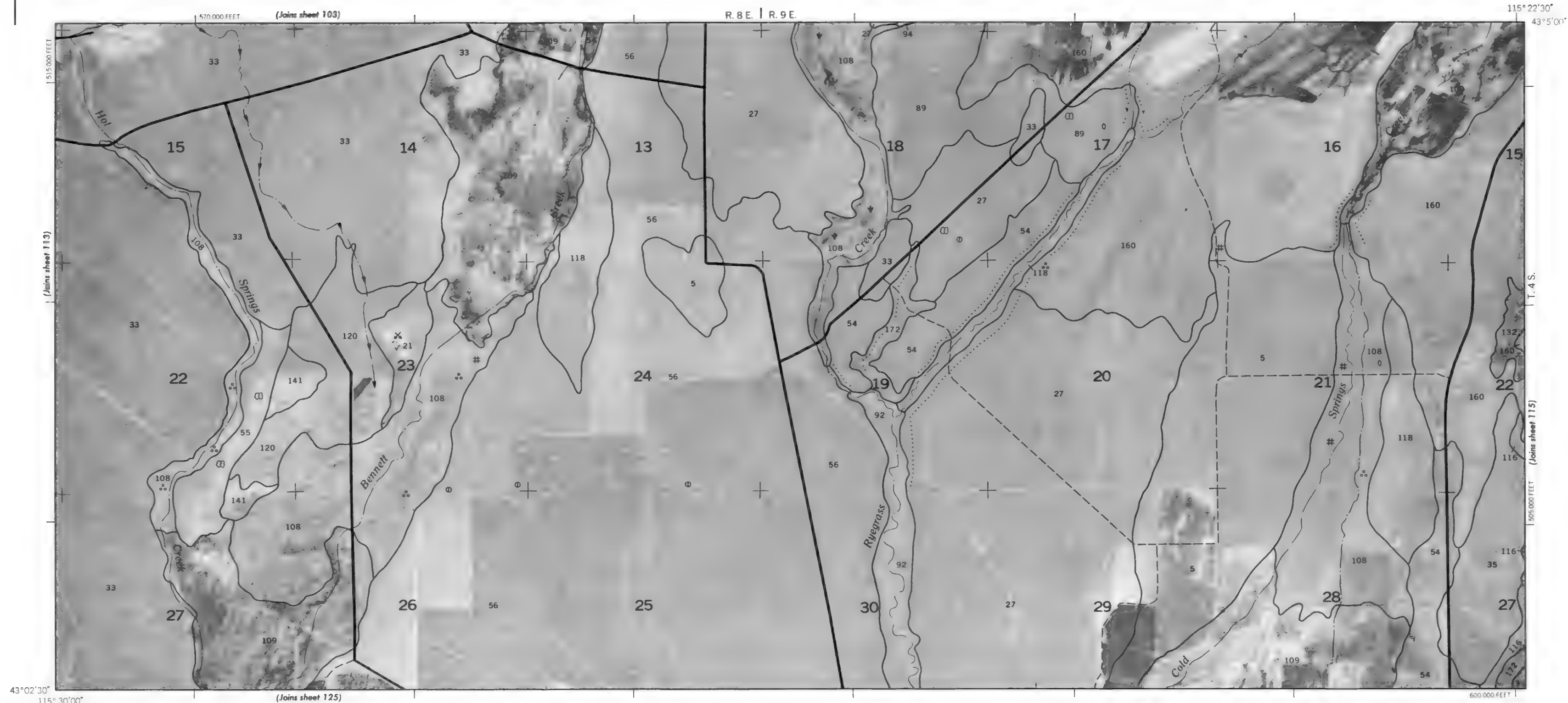
(From sheet 101)

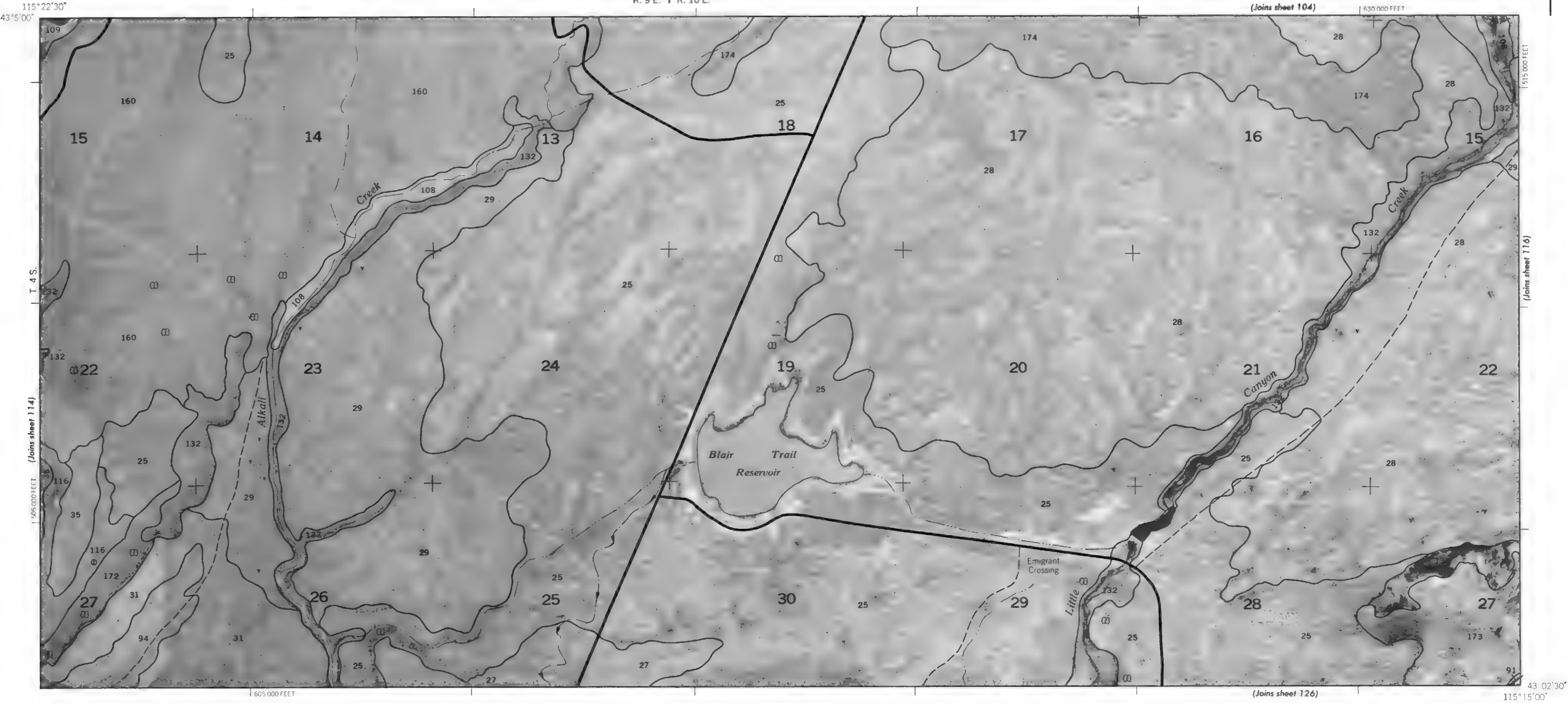


Joint Sheet 123

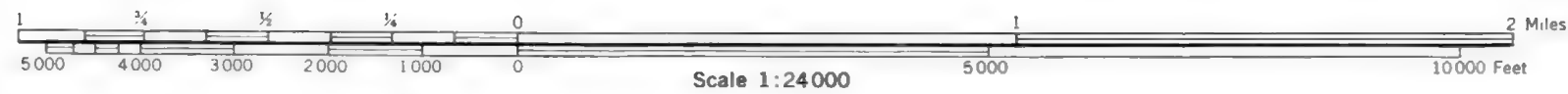
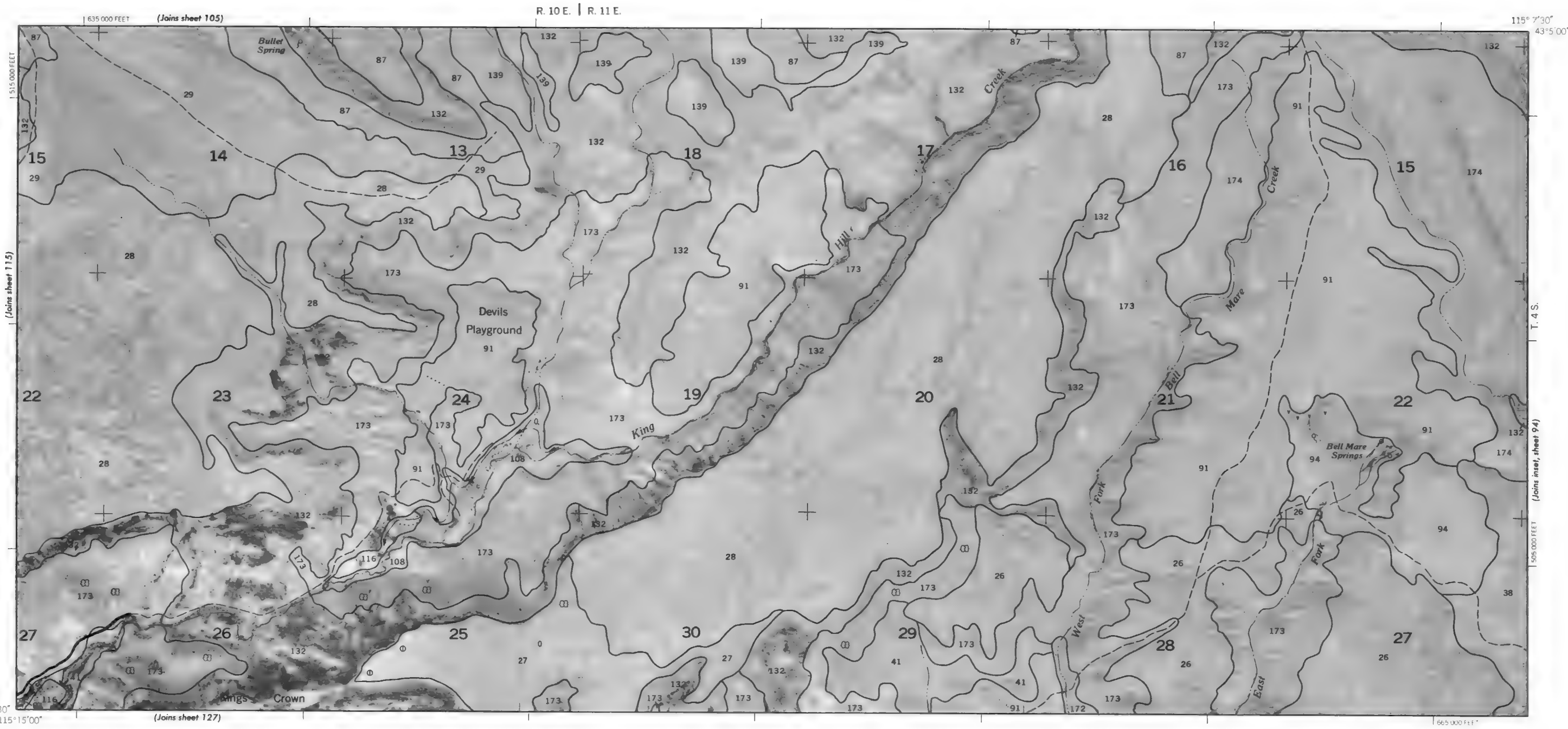


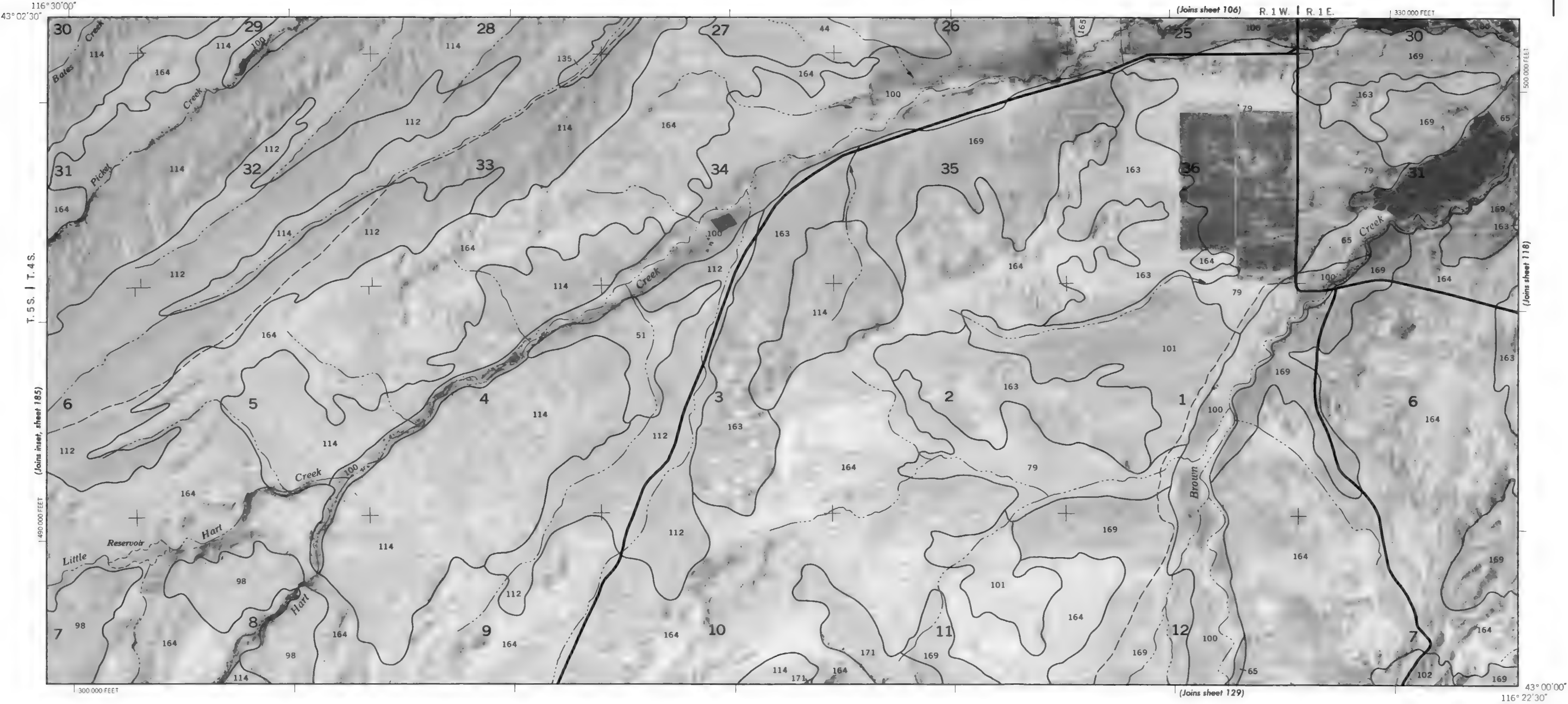












N





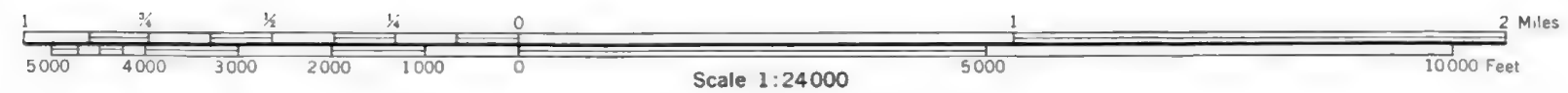




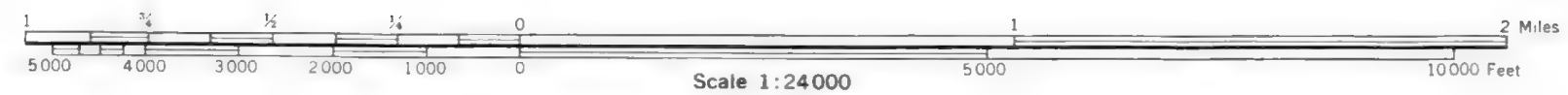


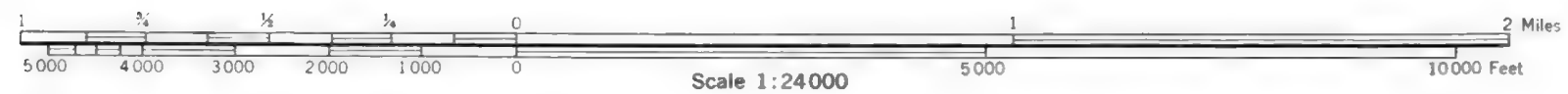
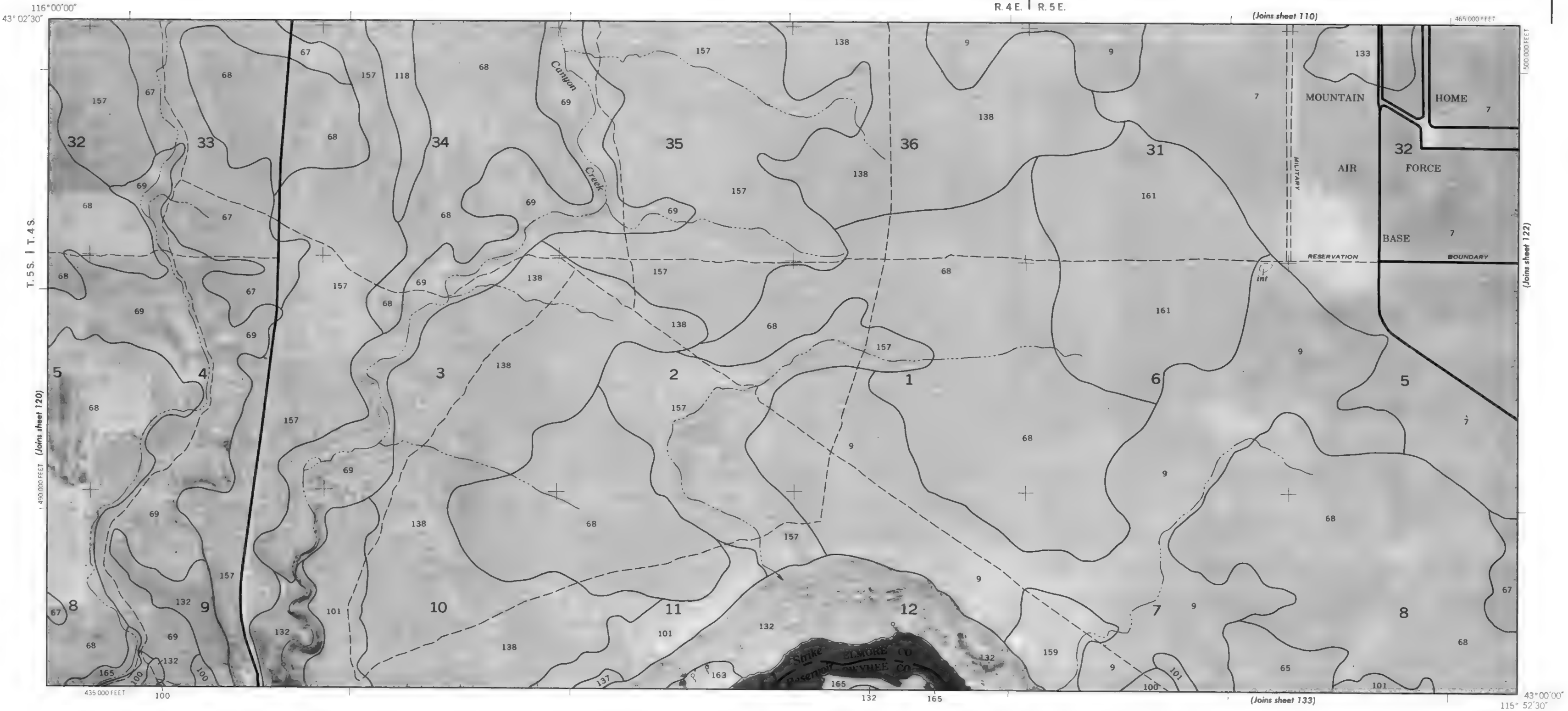
5° 7'30"  
43° 35'00"

T. 2 N. | T. 3 N.

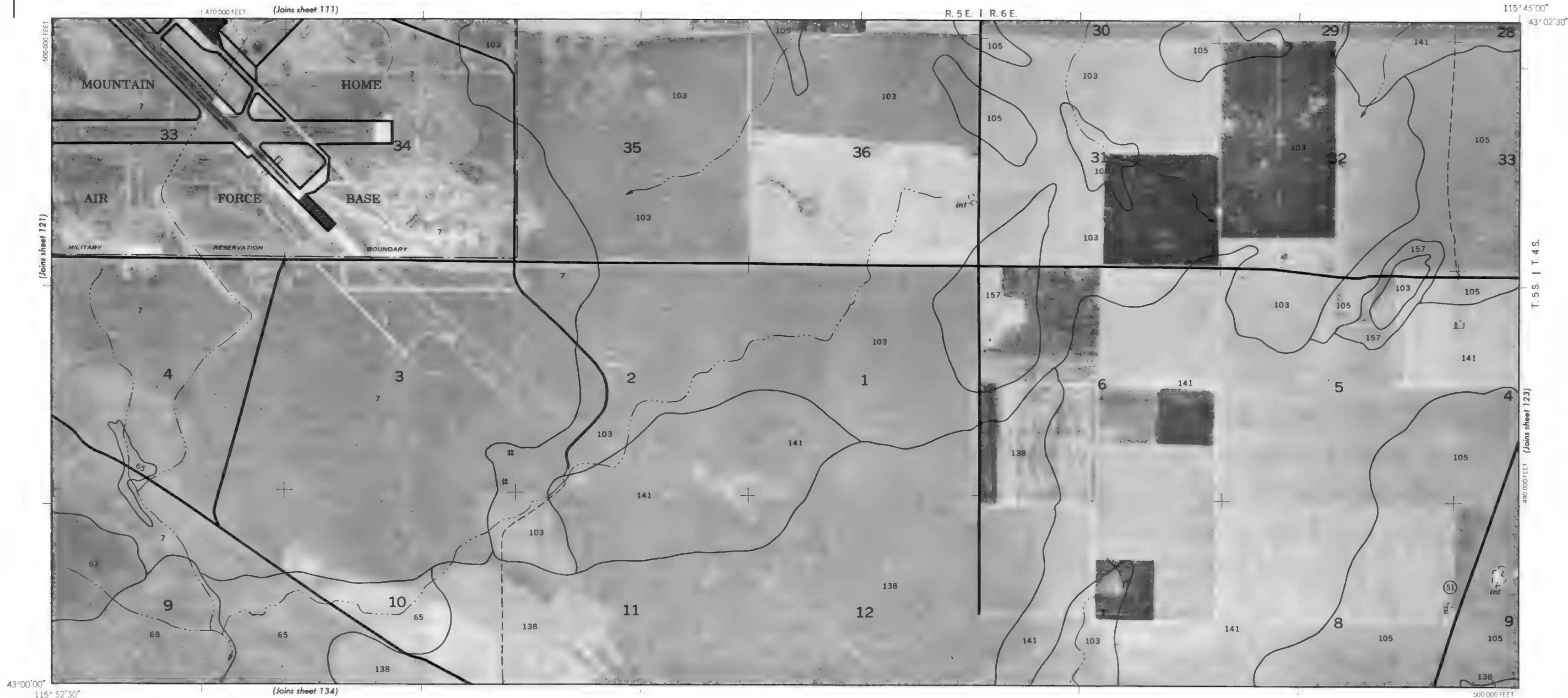


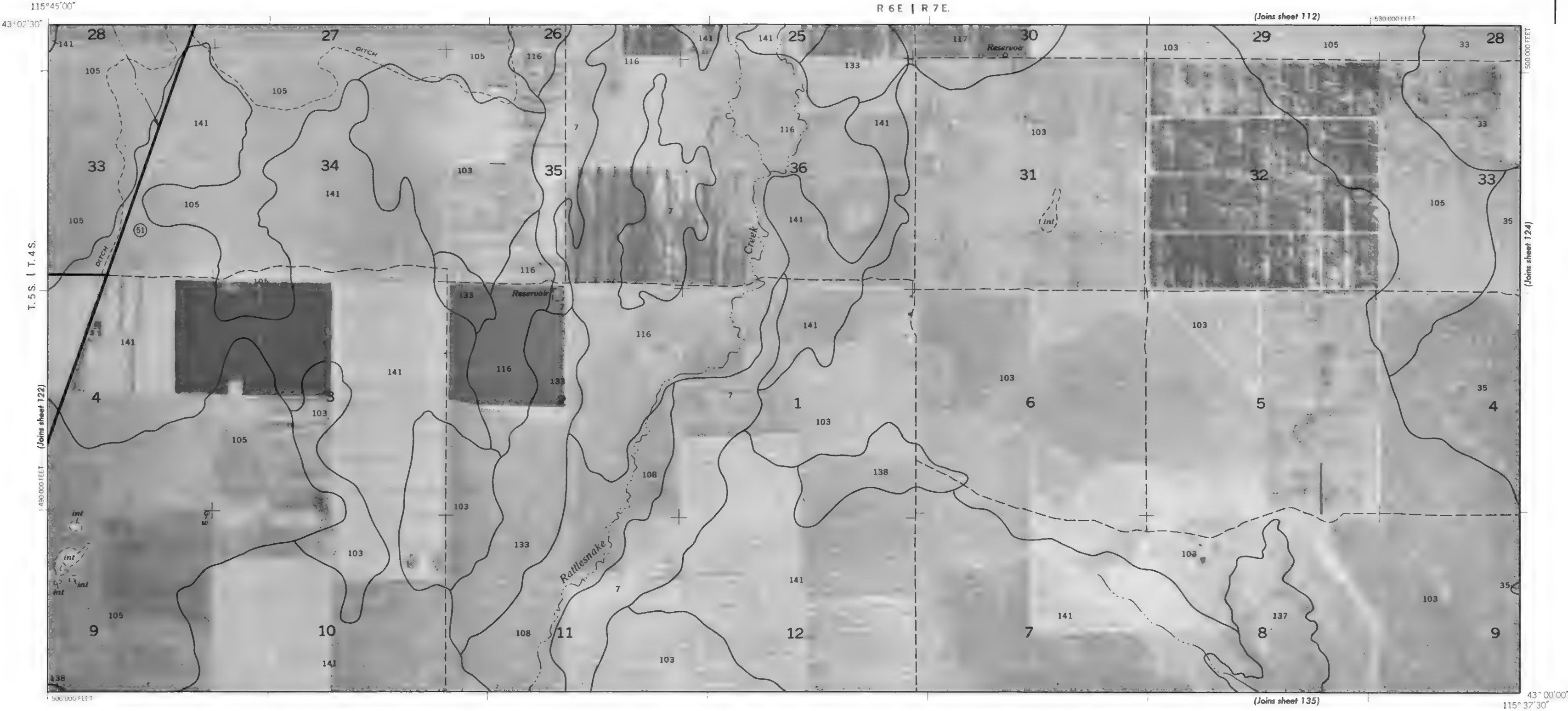
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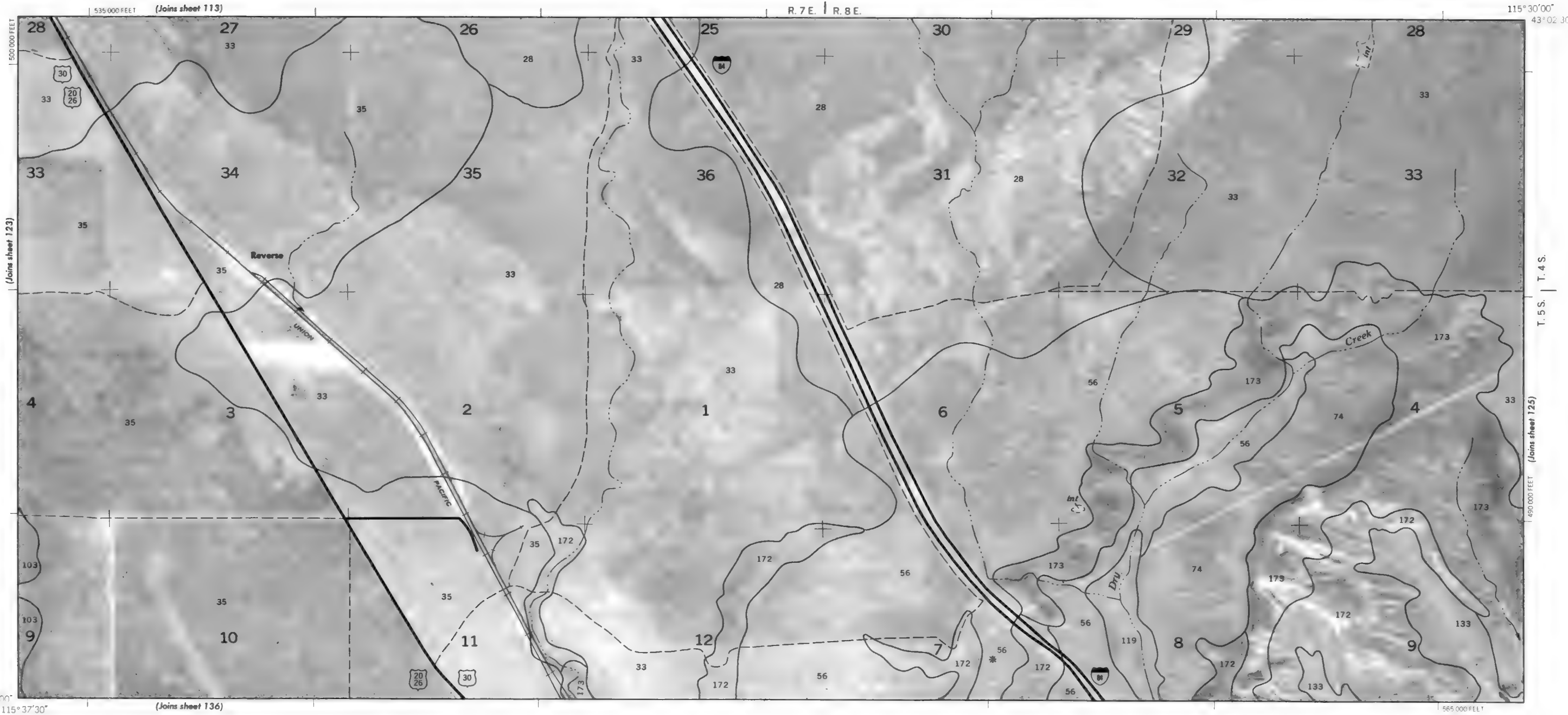


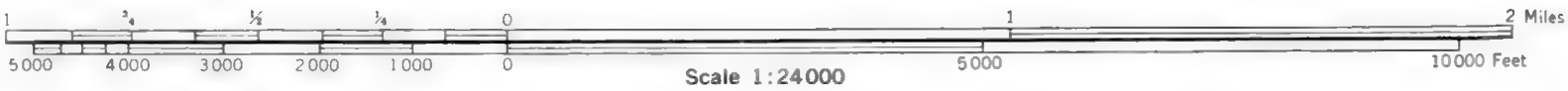
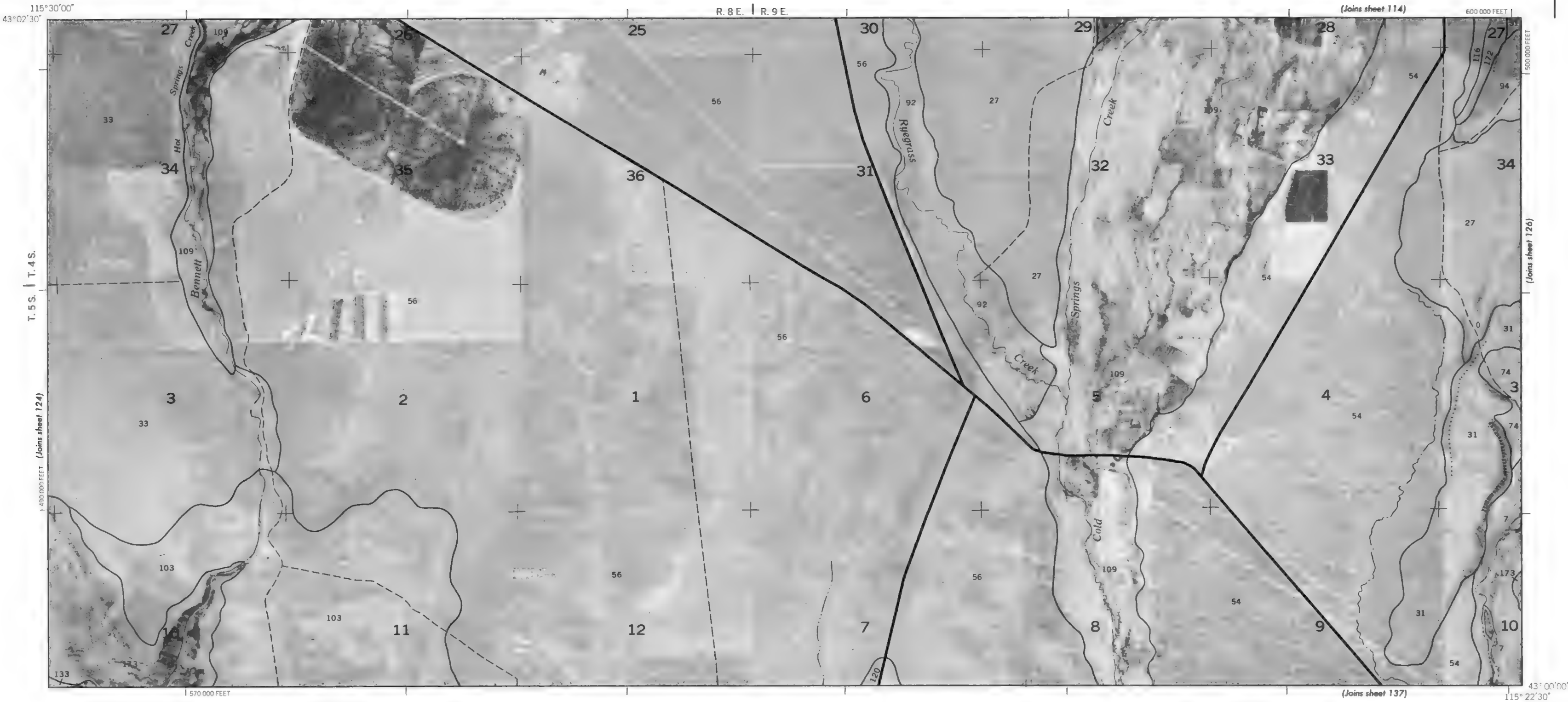




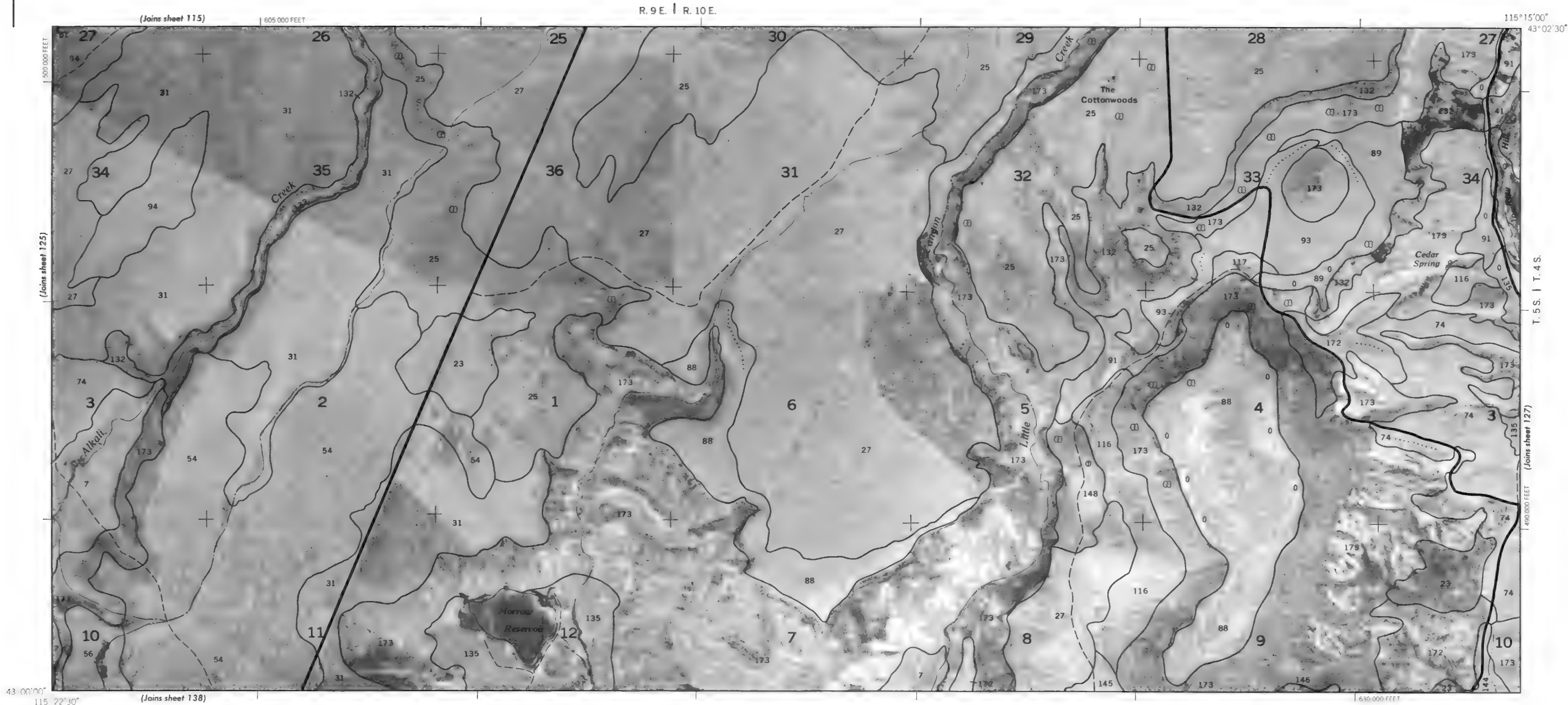












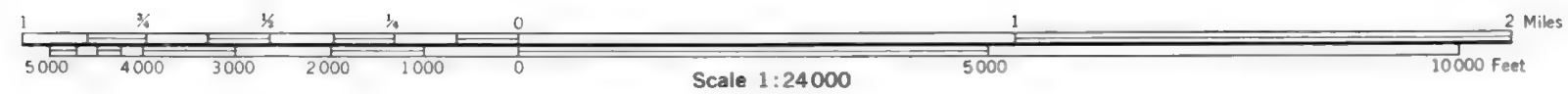




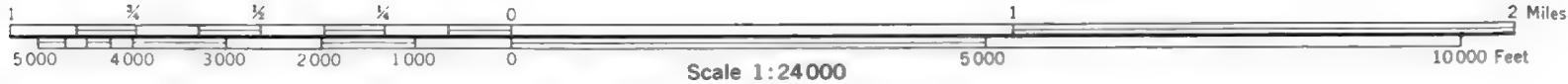
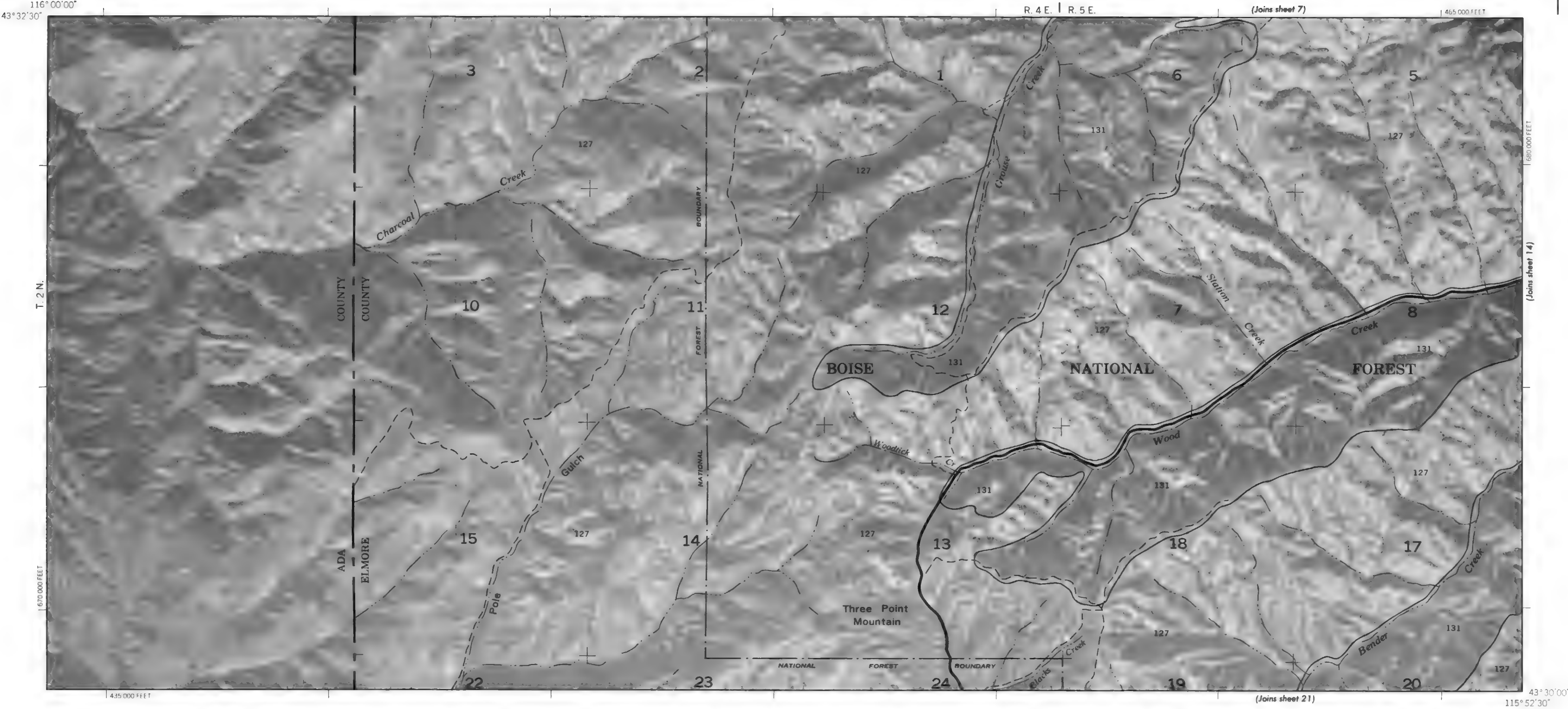
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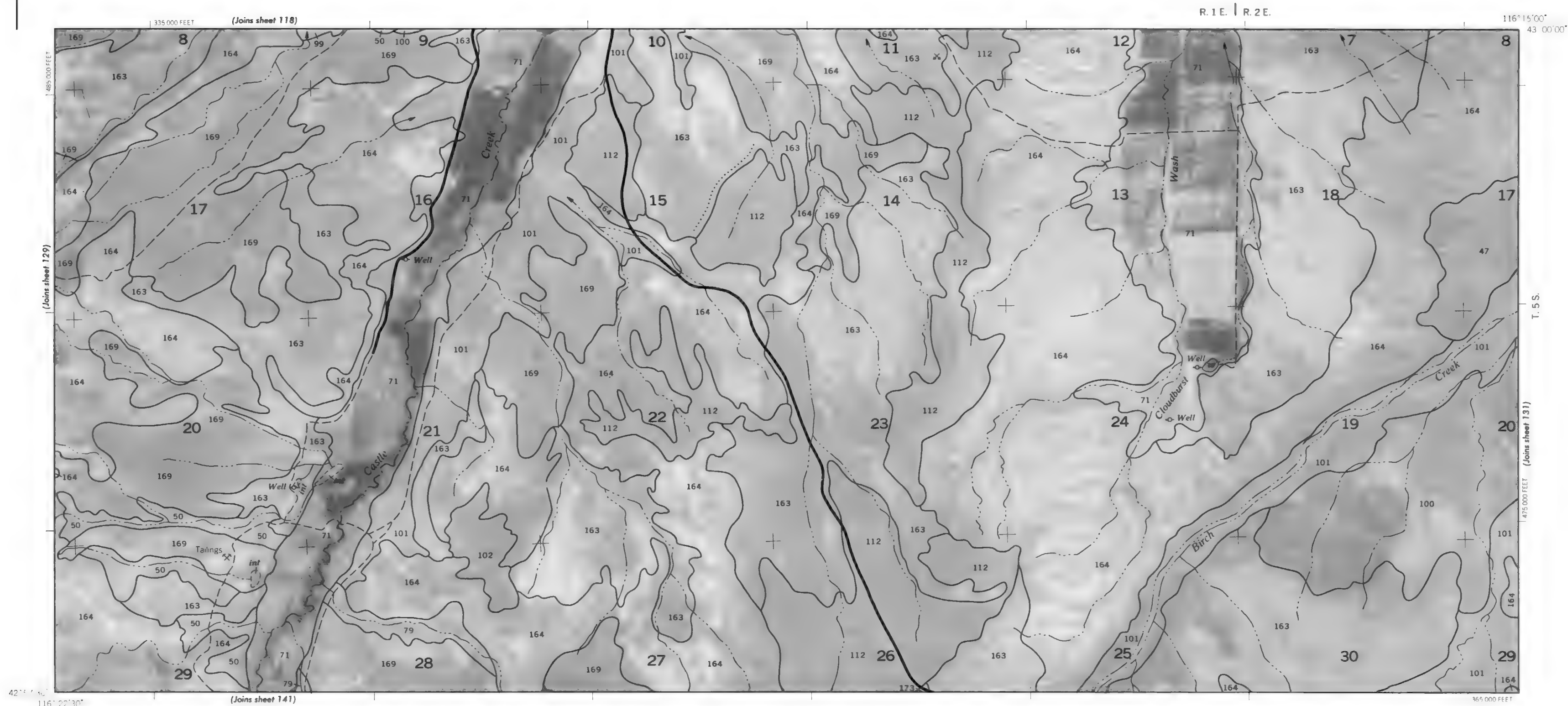


N



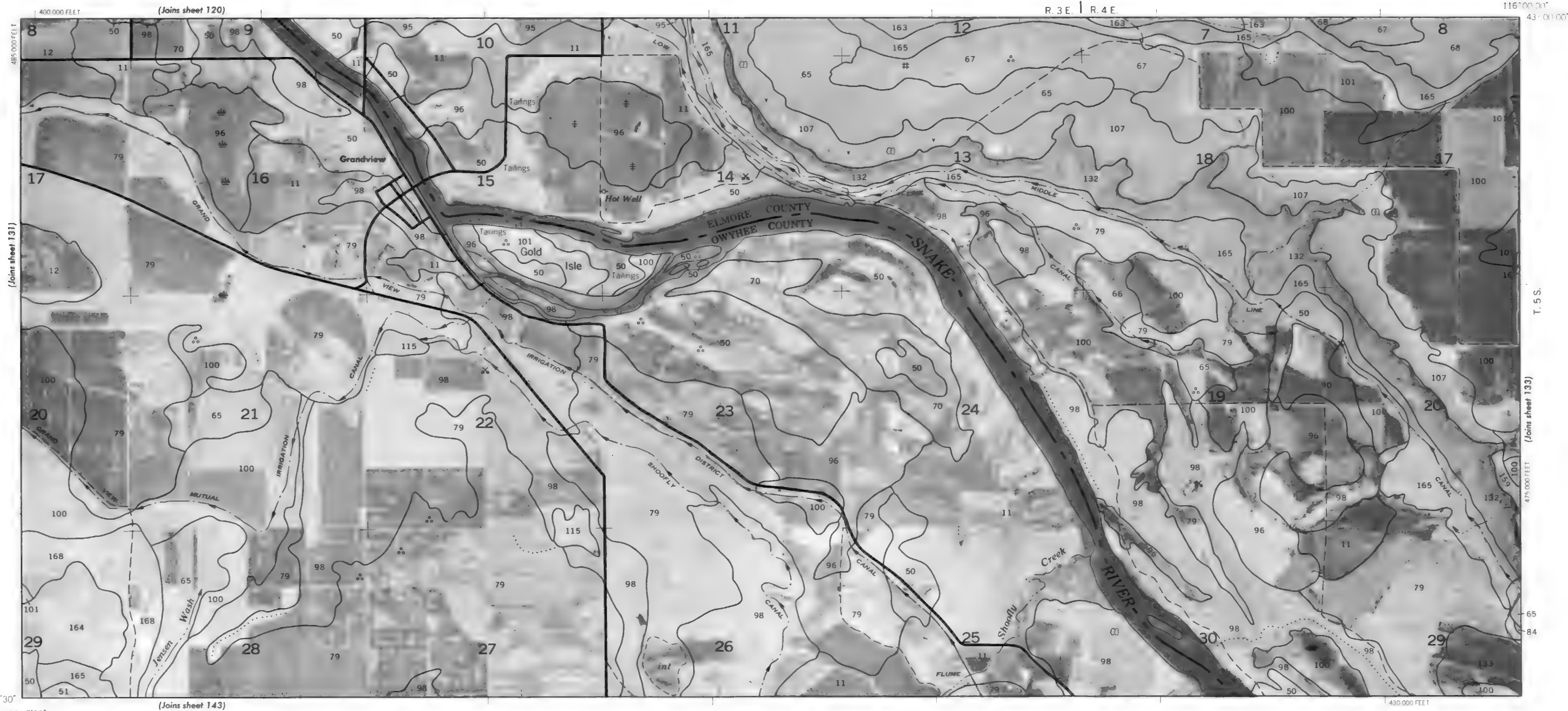














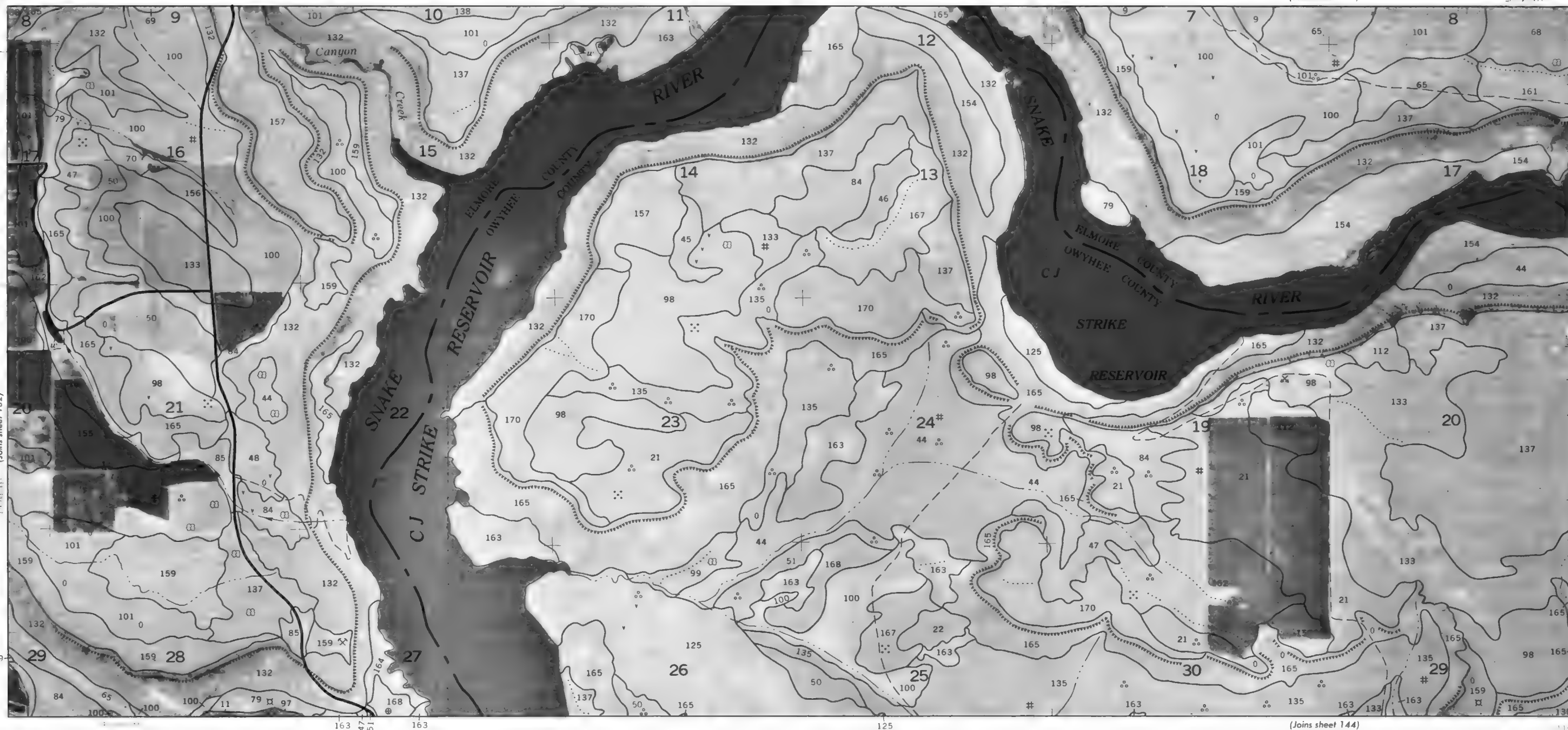
R. 4 E. | R. 5 E.

(Joins sheet 121)

T. 5 S.

(Joins sheet 132)

79

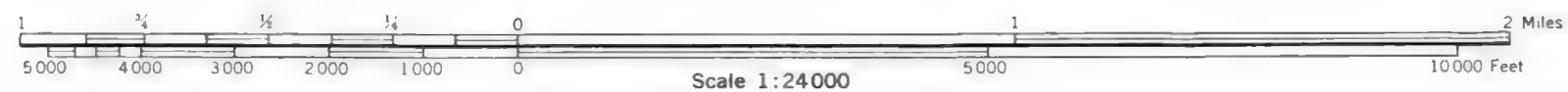


(Joins sheet 134)

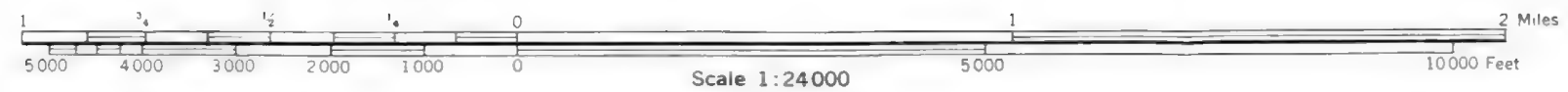
(Joins sheet 144)



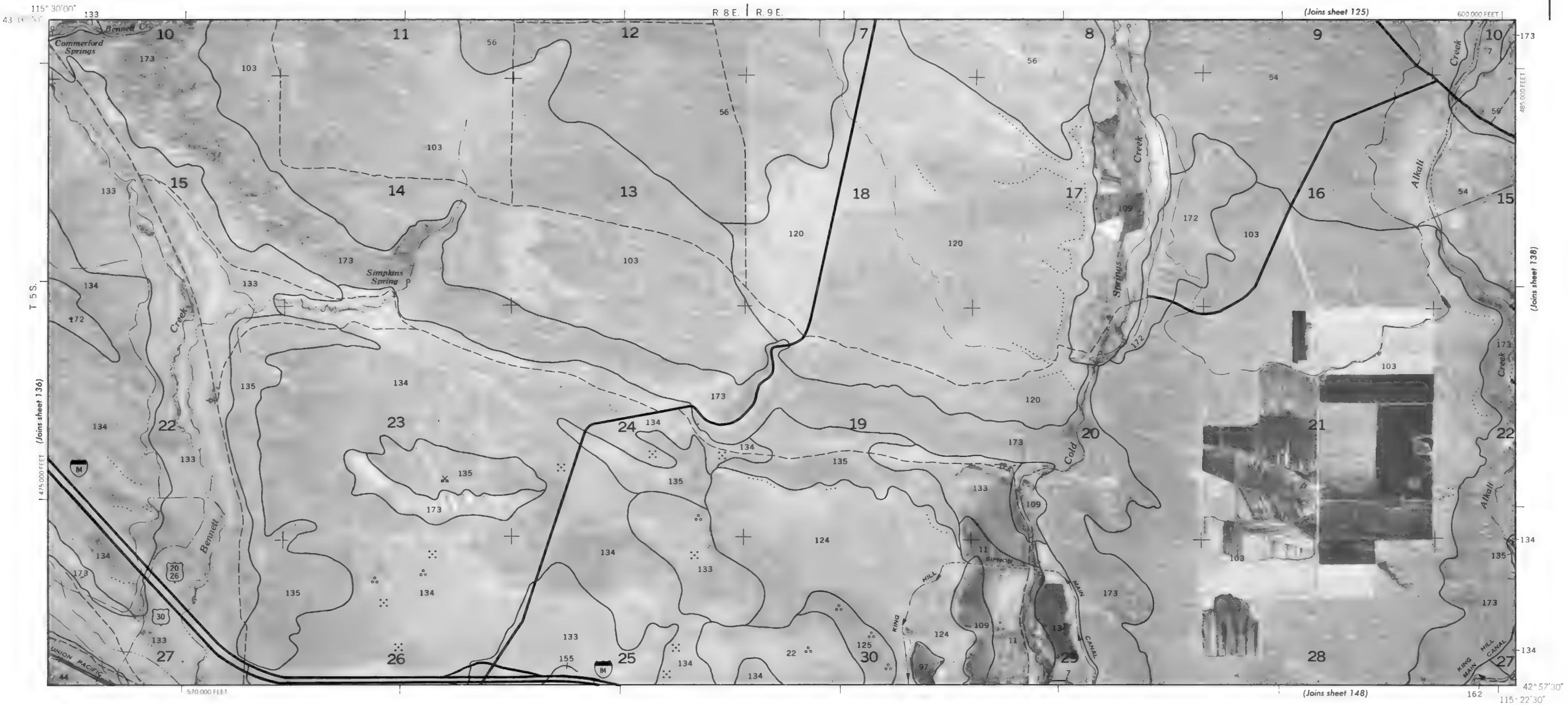


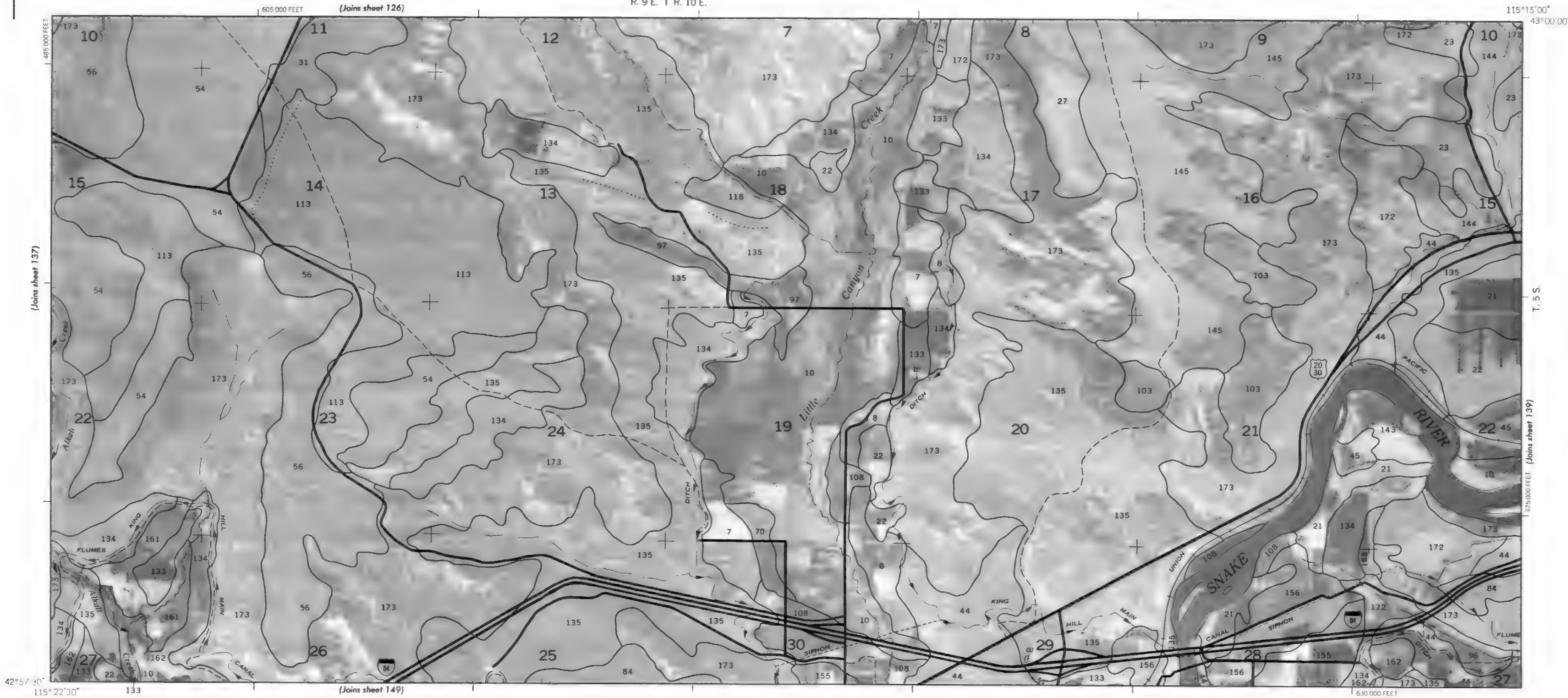


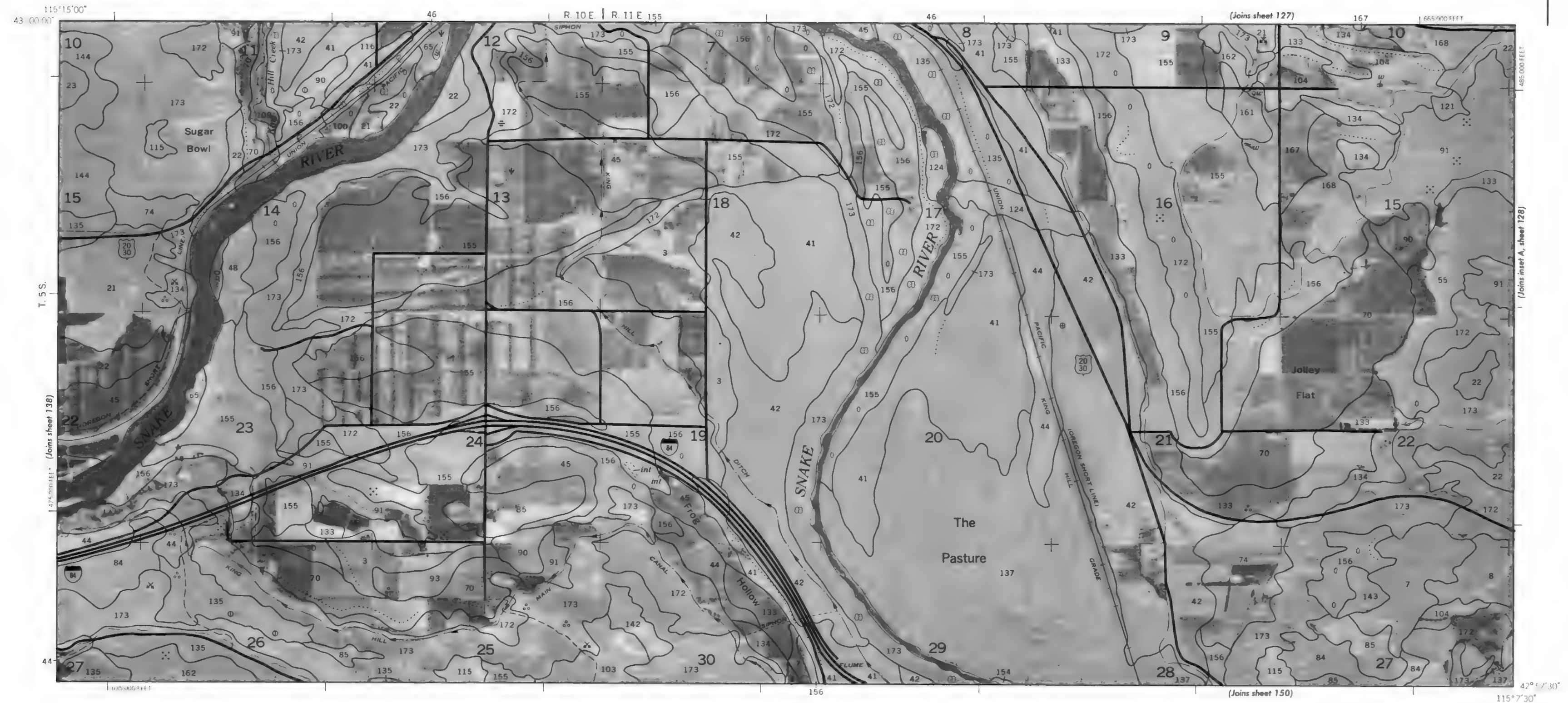




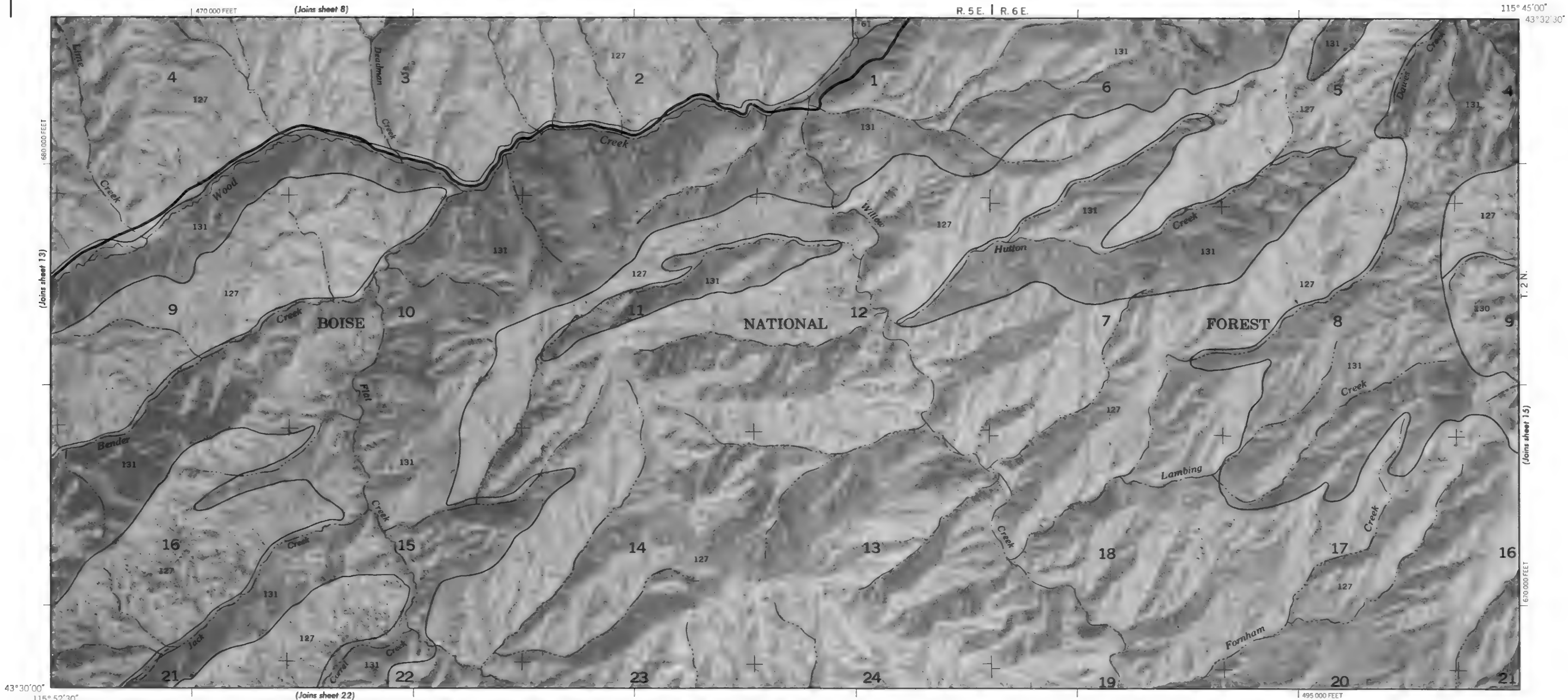


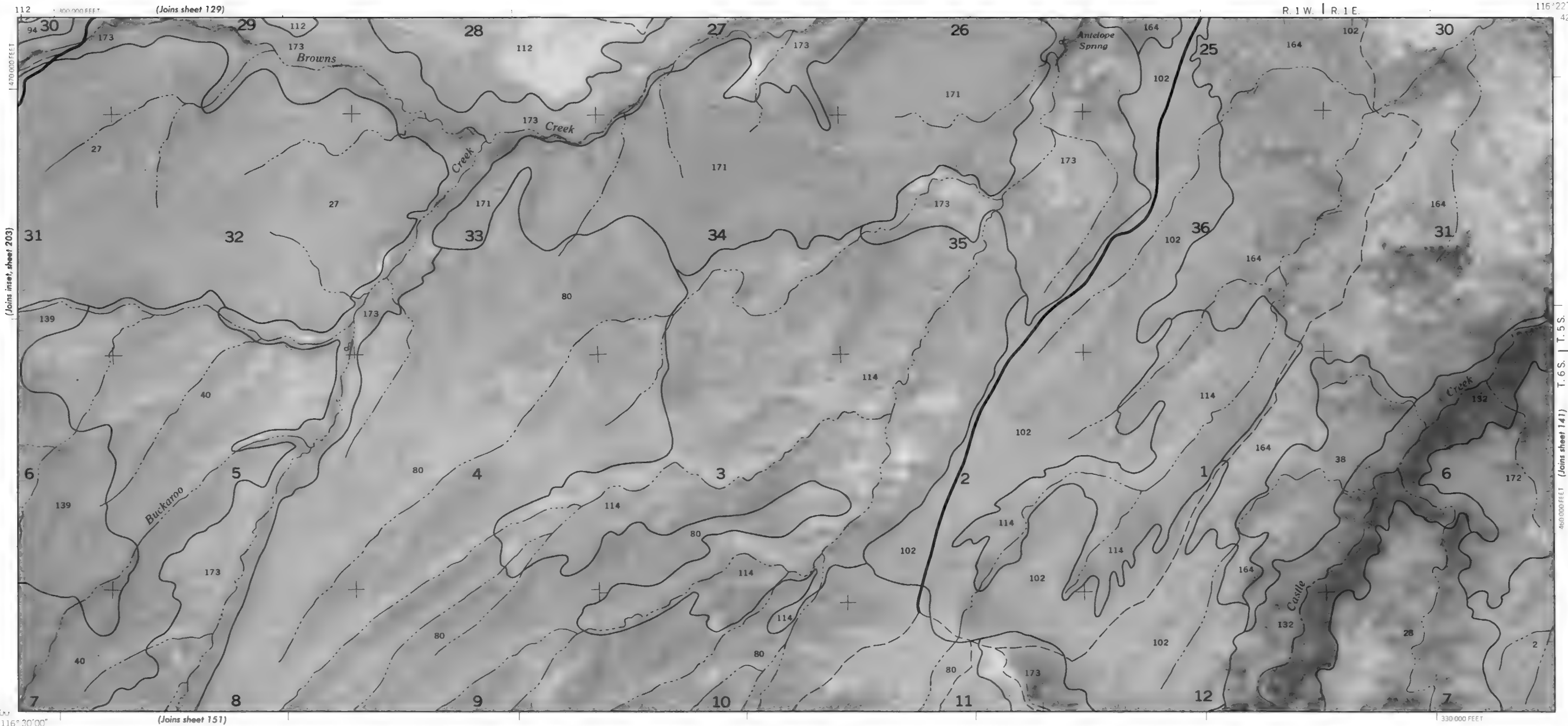




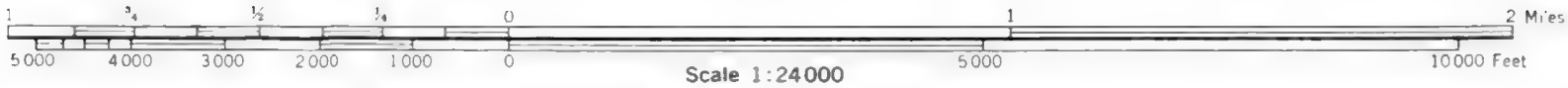
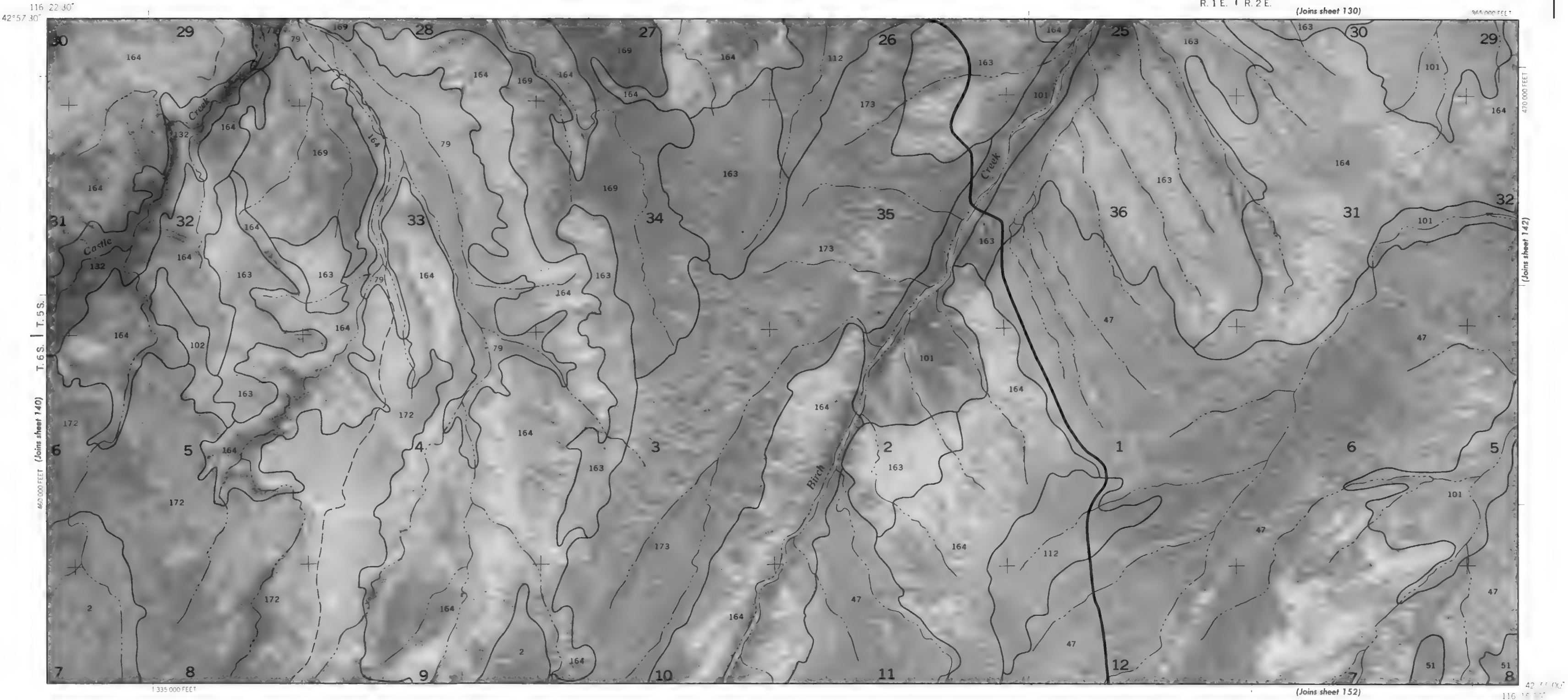














370,000 FEET (Joins sheet 131)

R. 2 E. | R. 3 E.

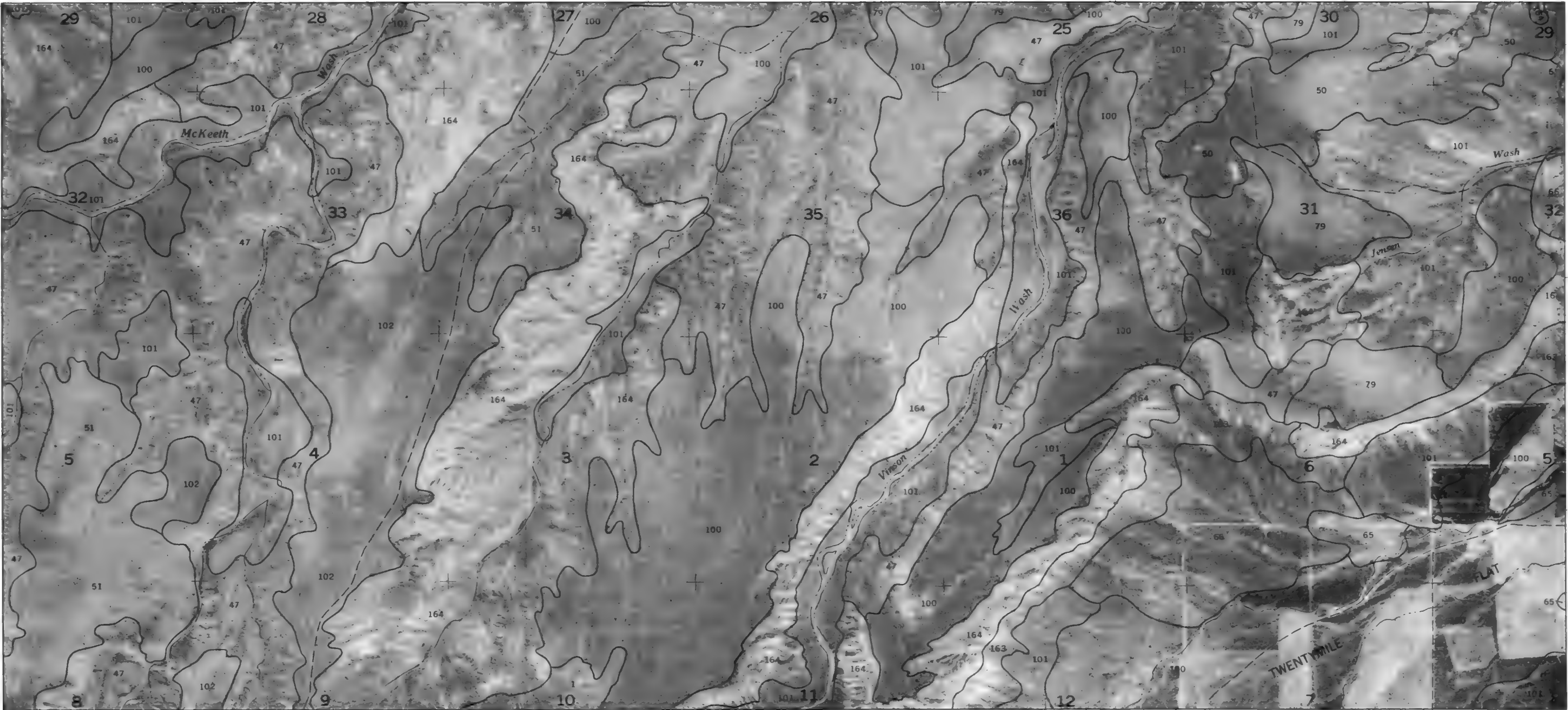
116

42

(Joins sheet 141)

T. 6 S. | T. 5 S.

(Joins sheet 143)

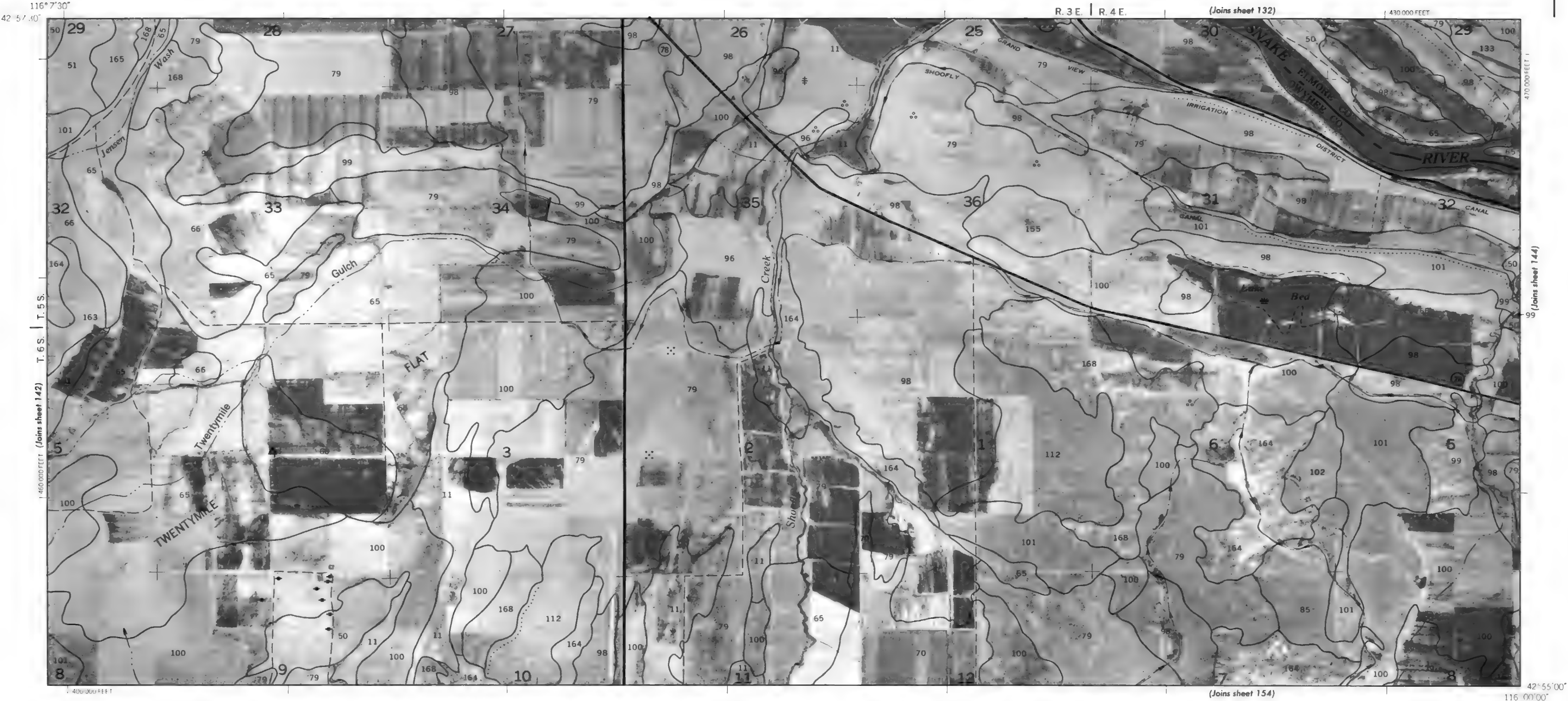


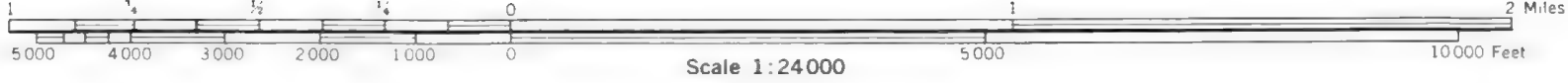
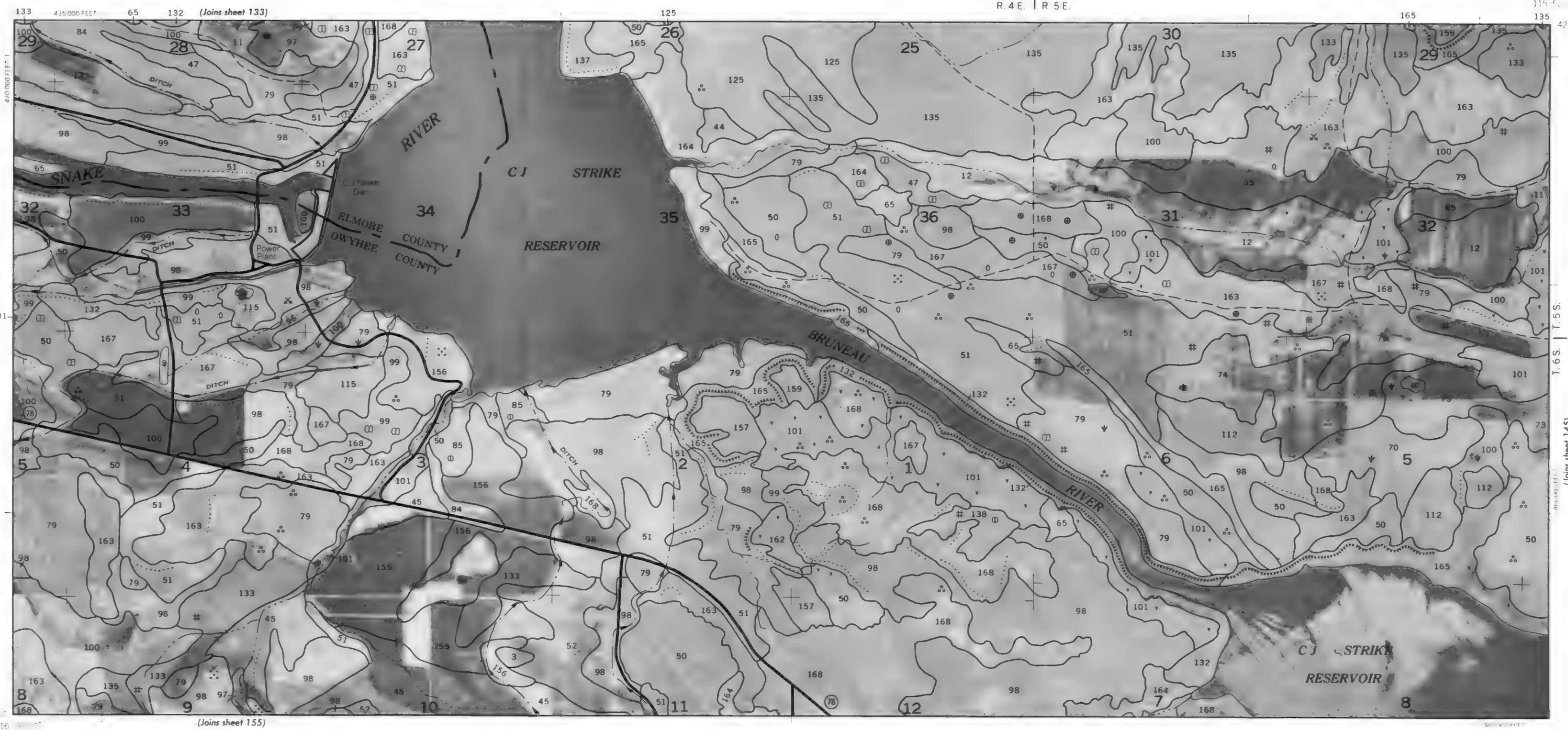
(Joins sheet 153)

1395,000 FEET

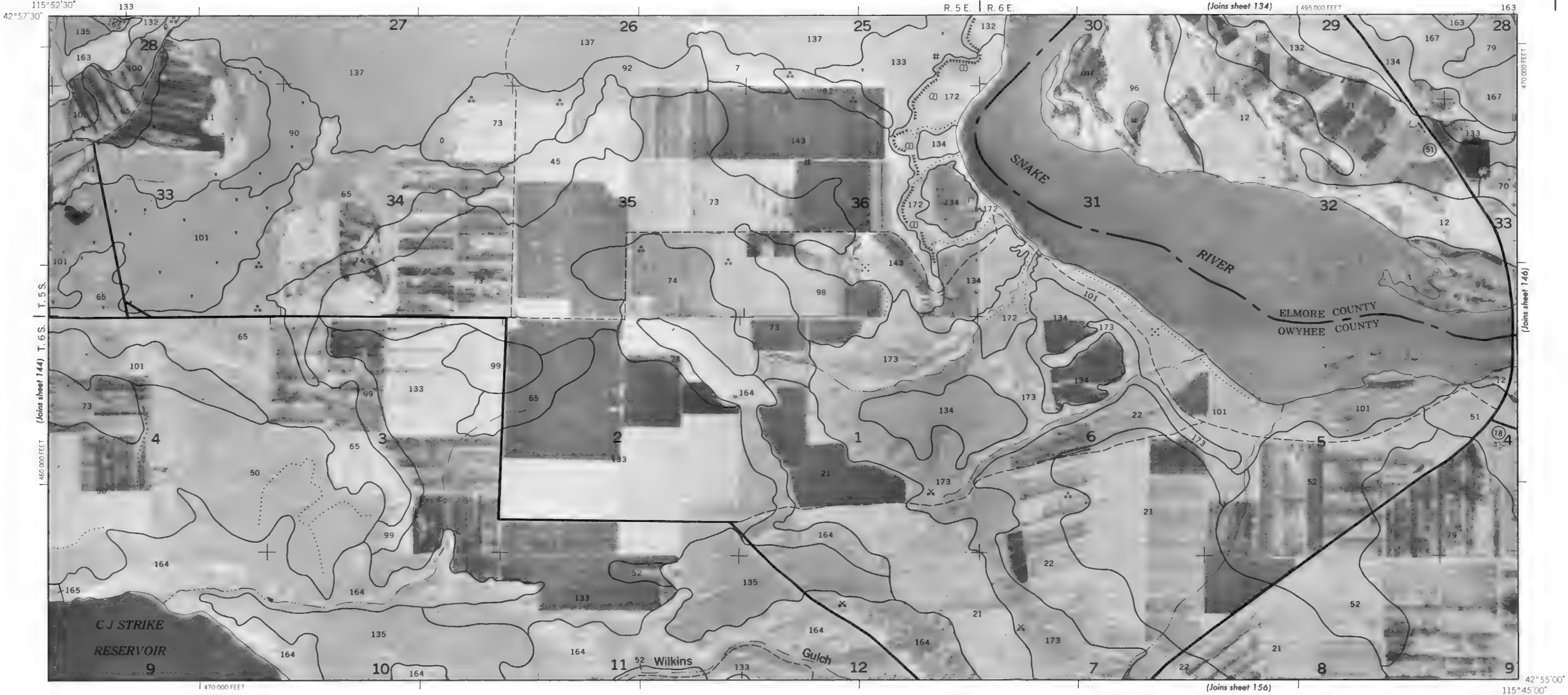




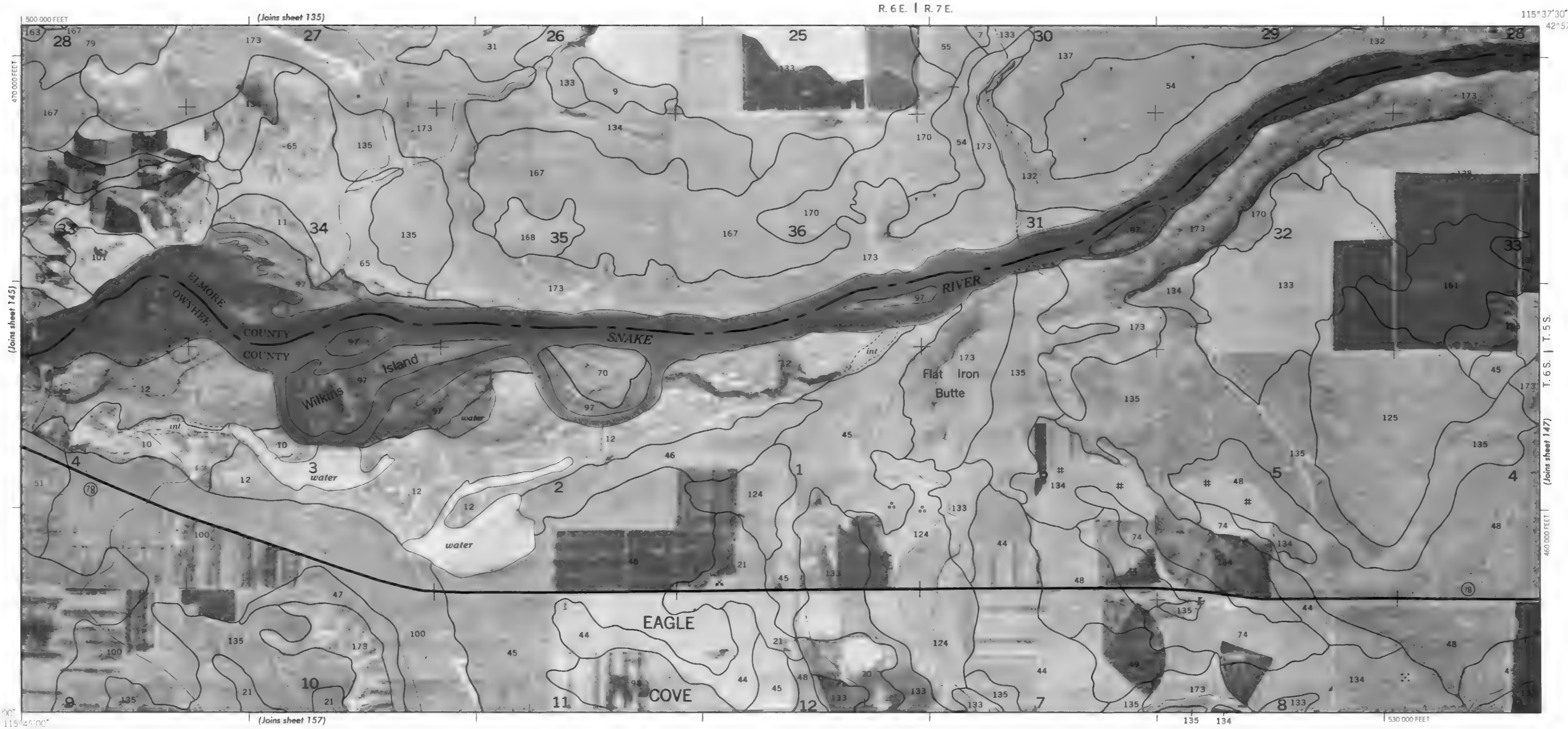








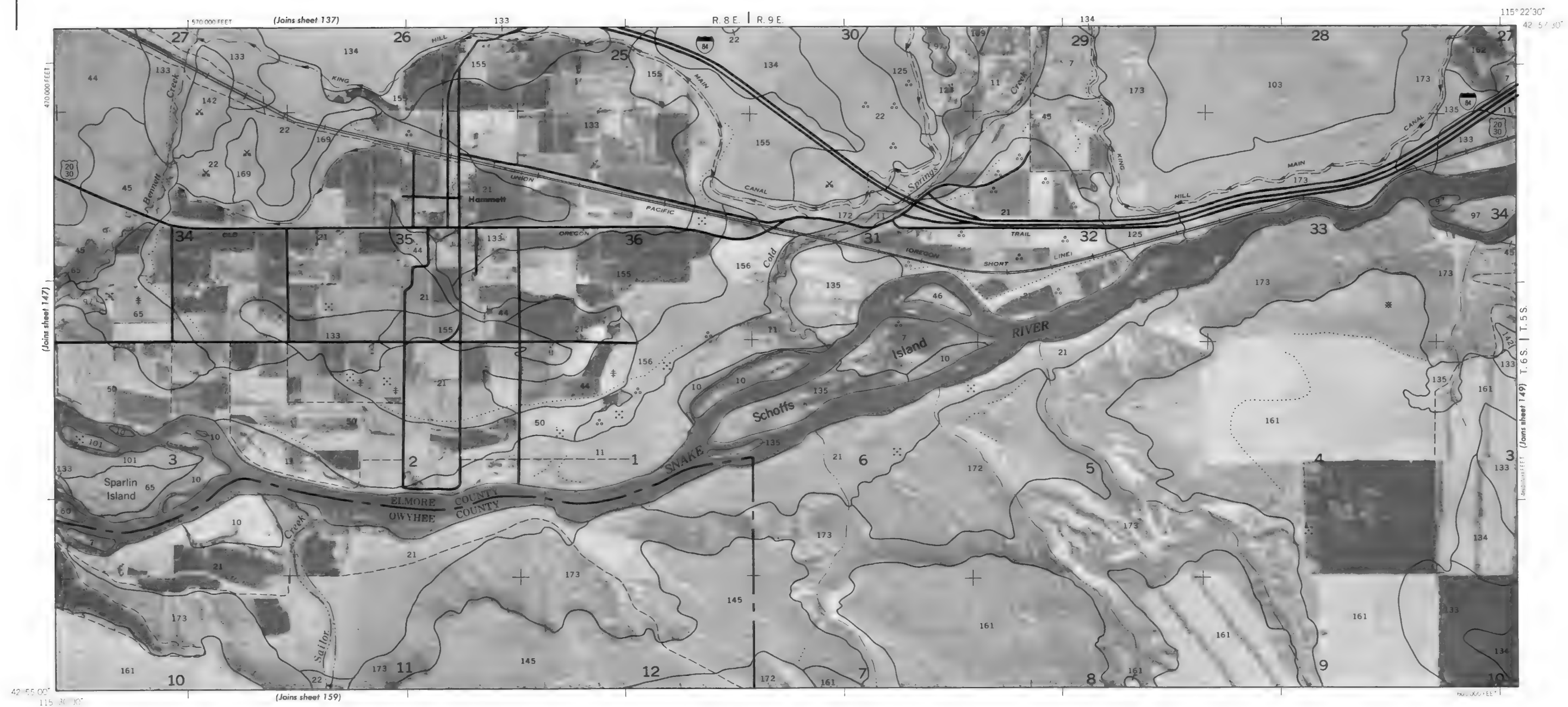
146



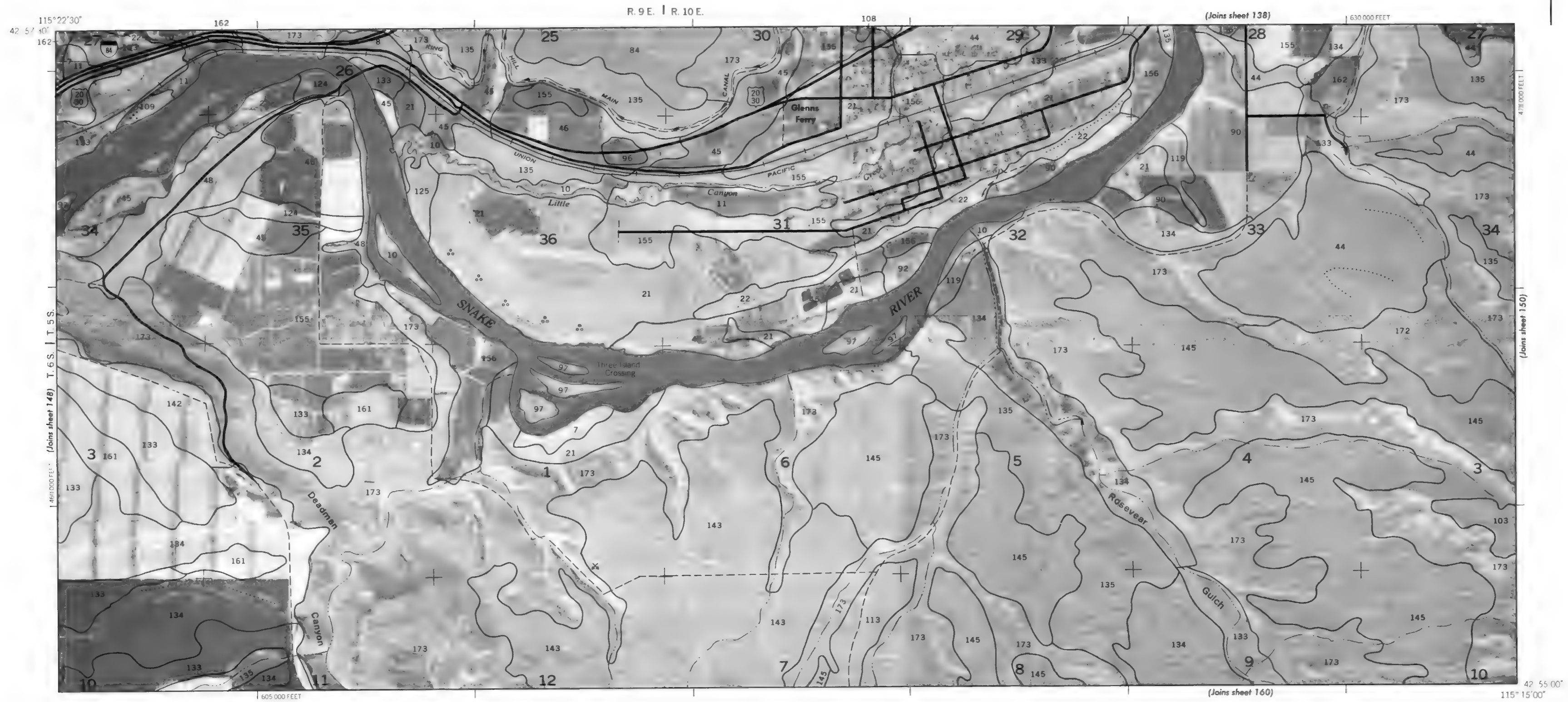




148

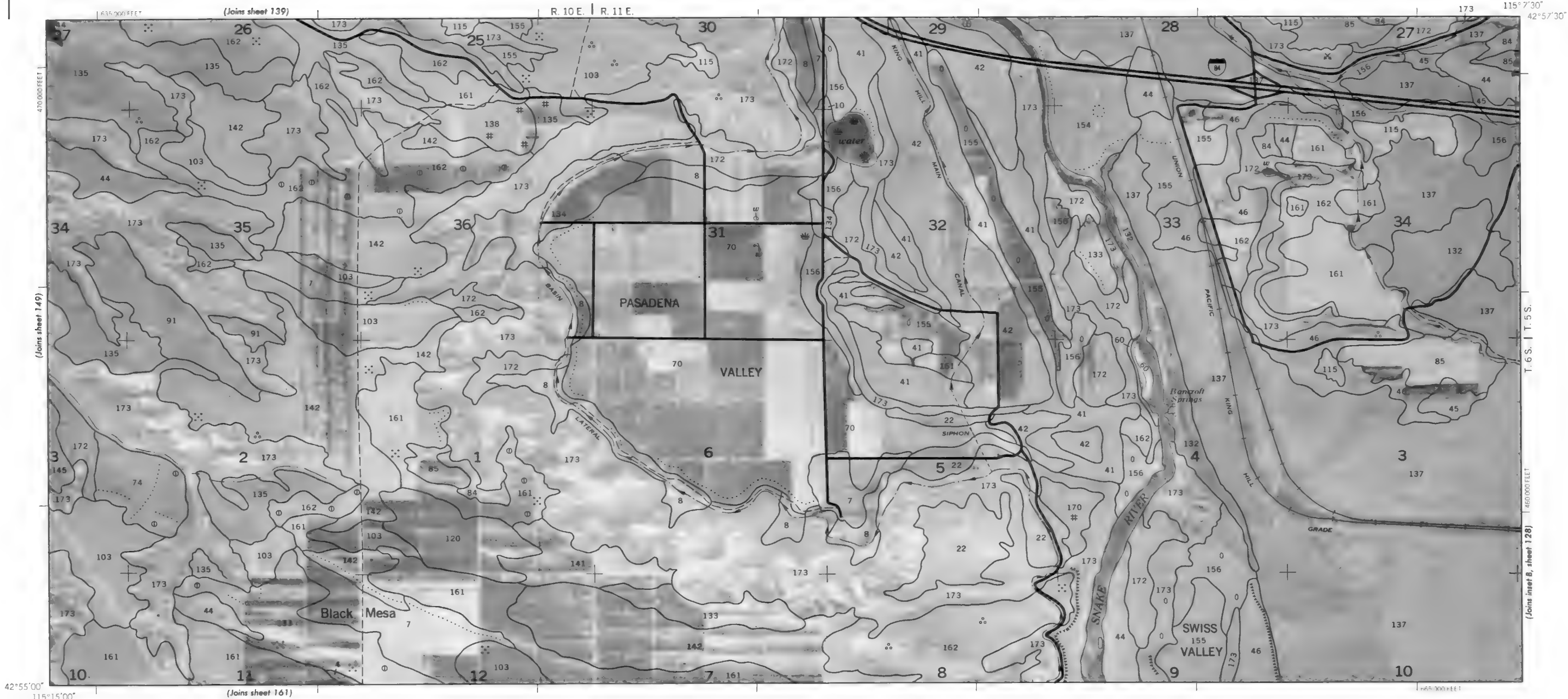


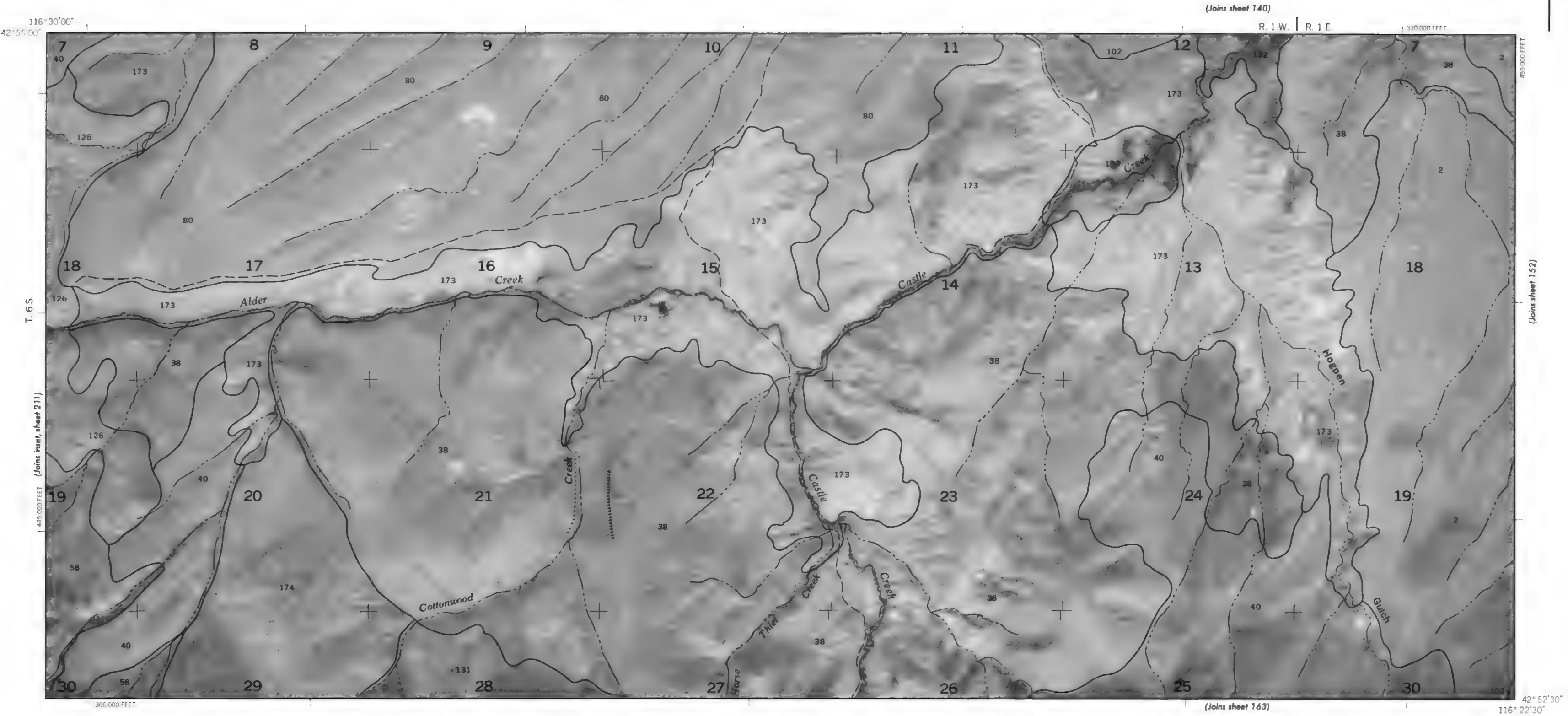


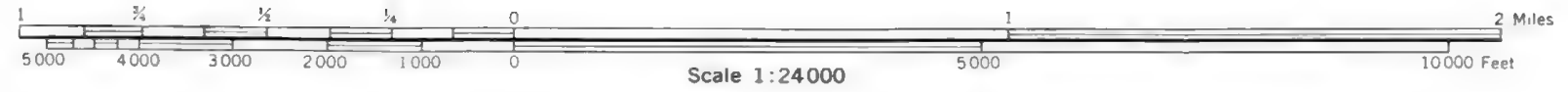
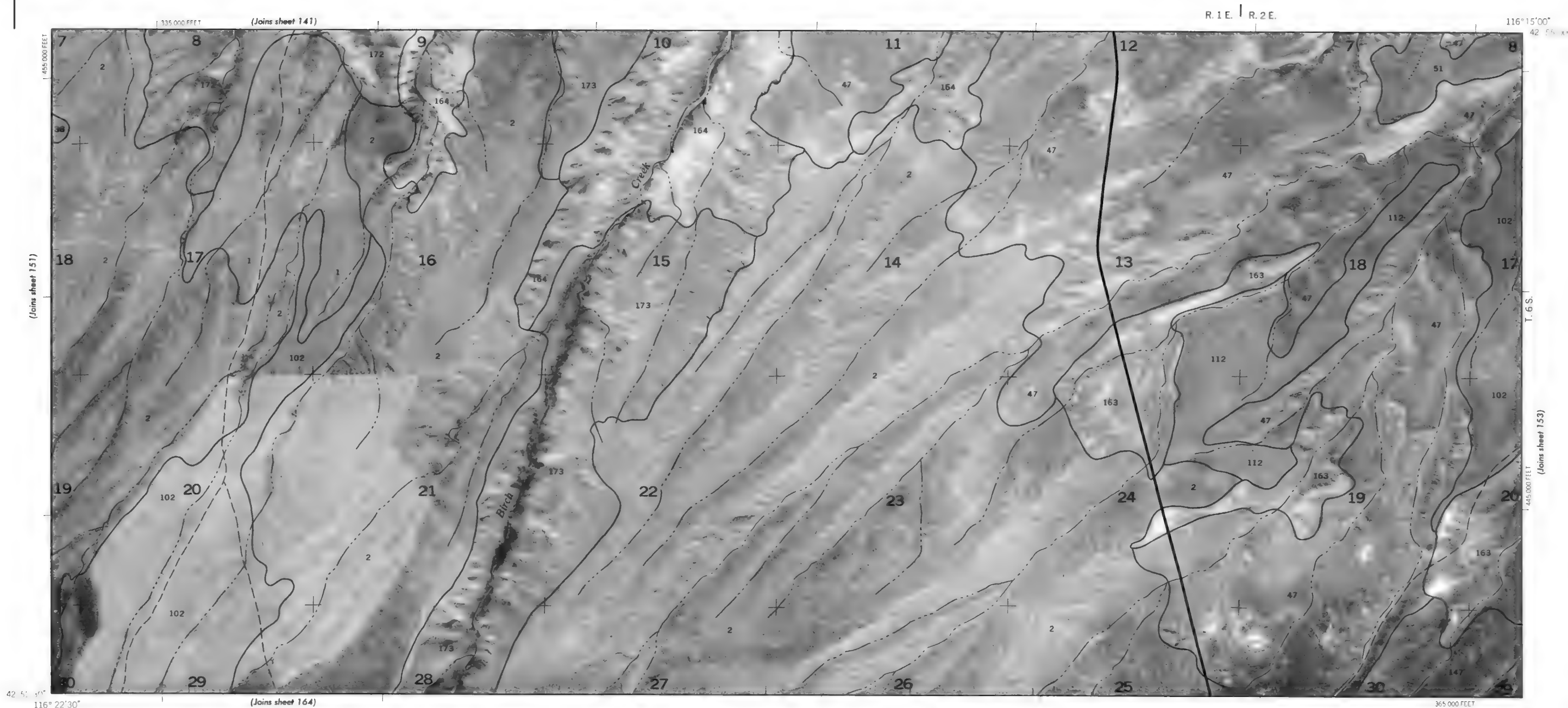




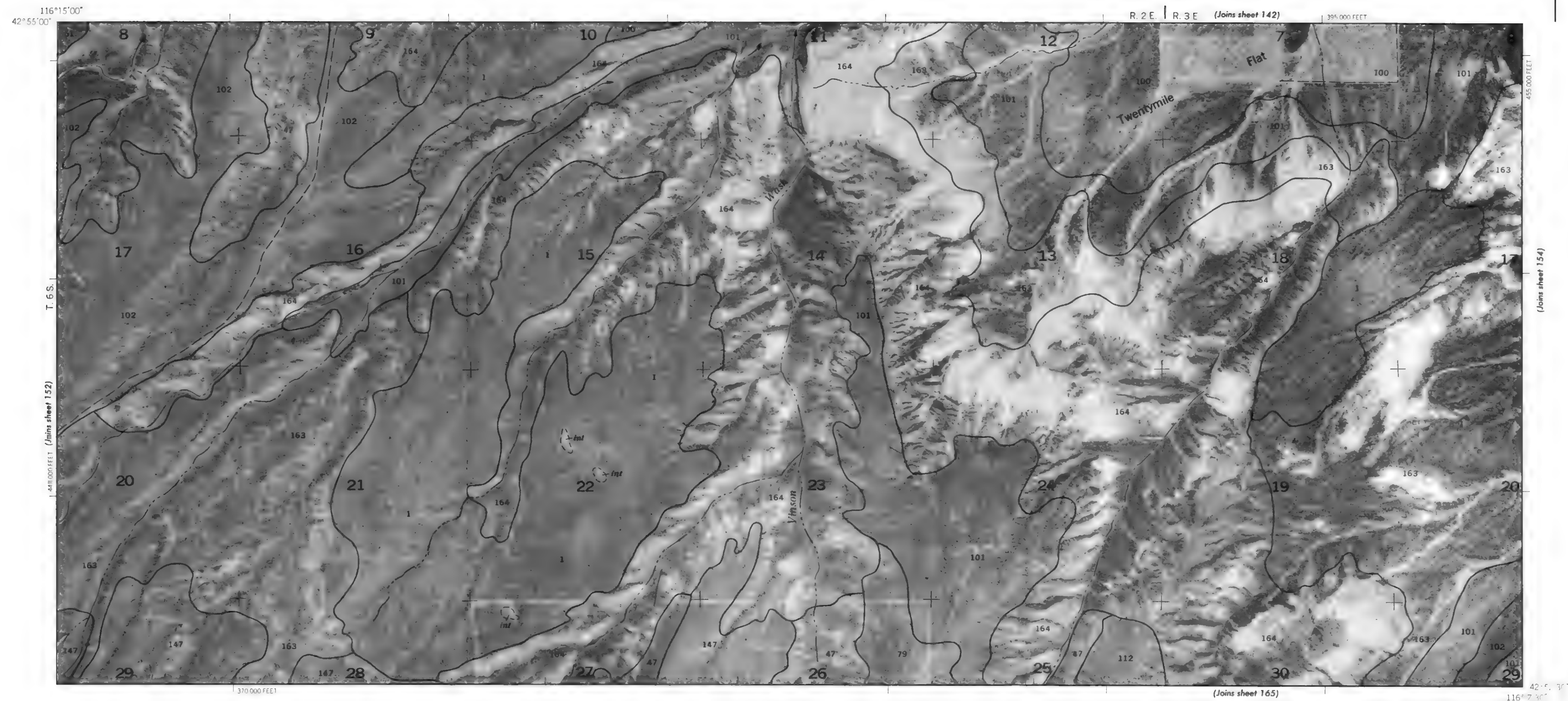


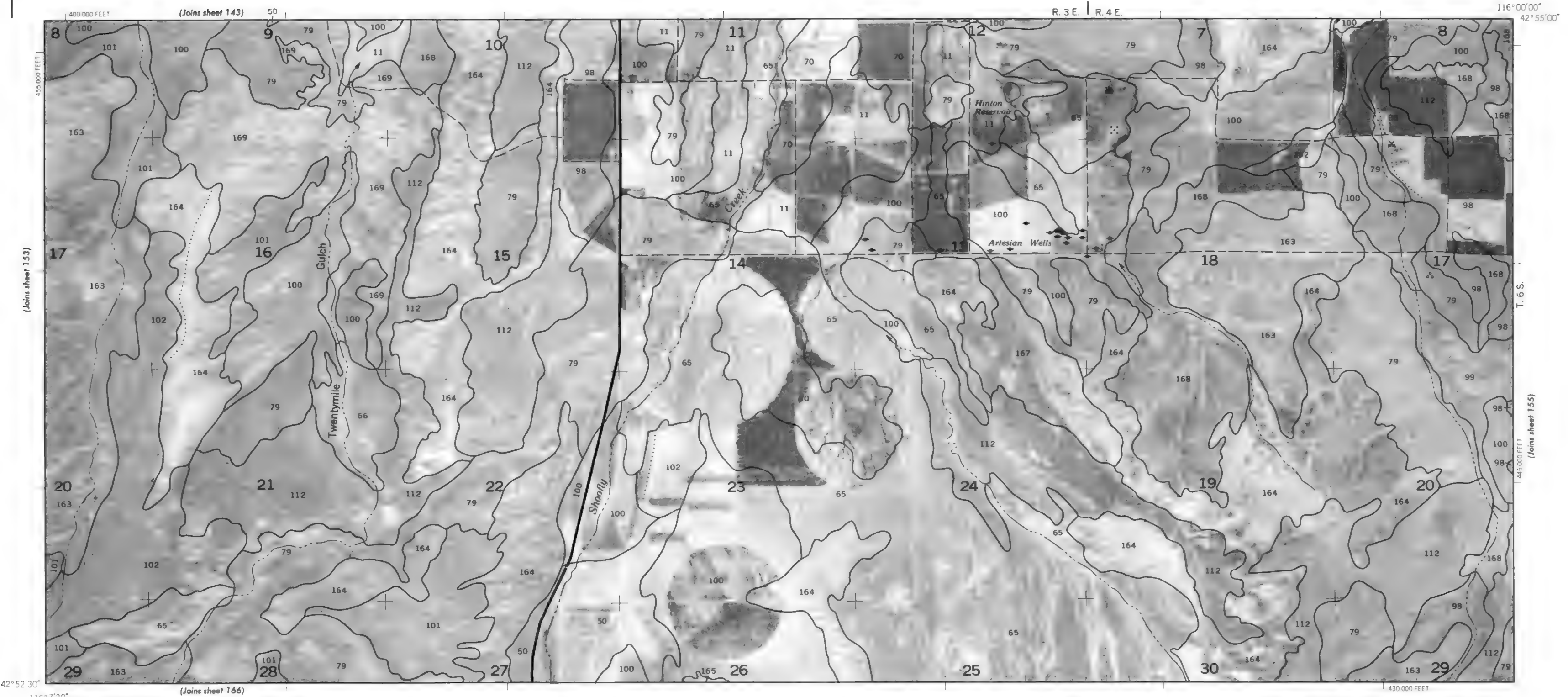




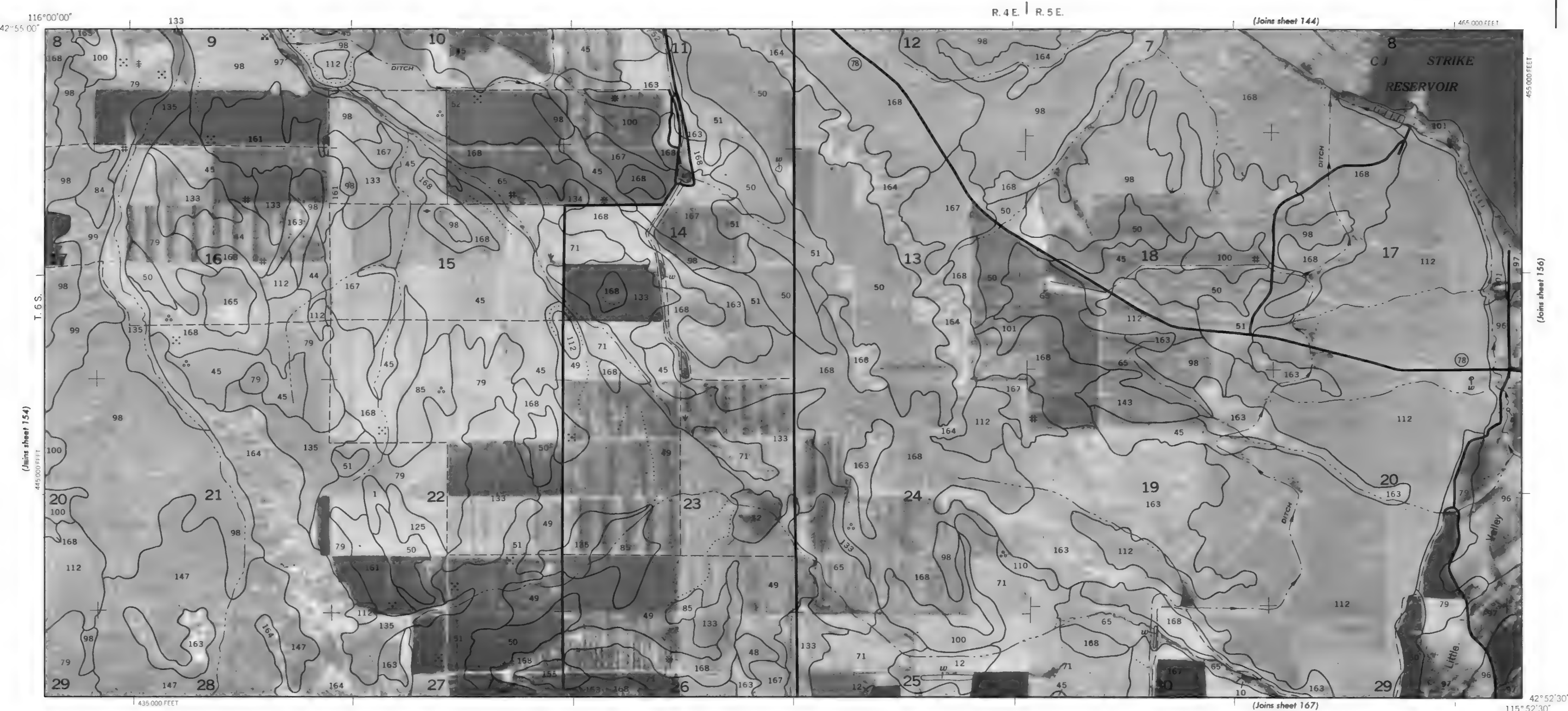




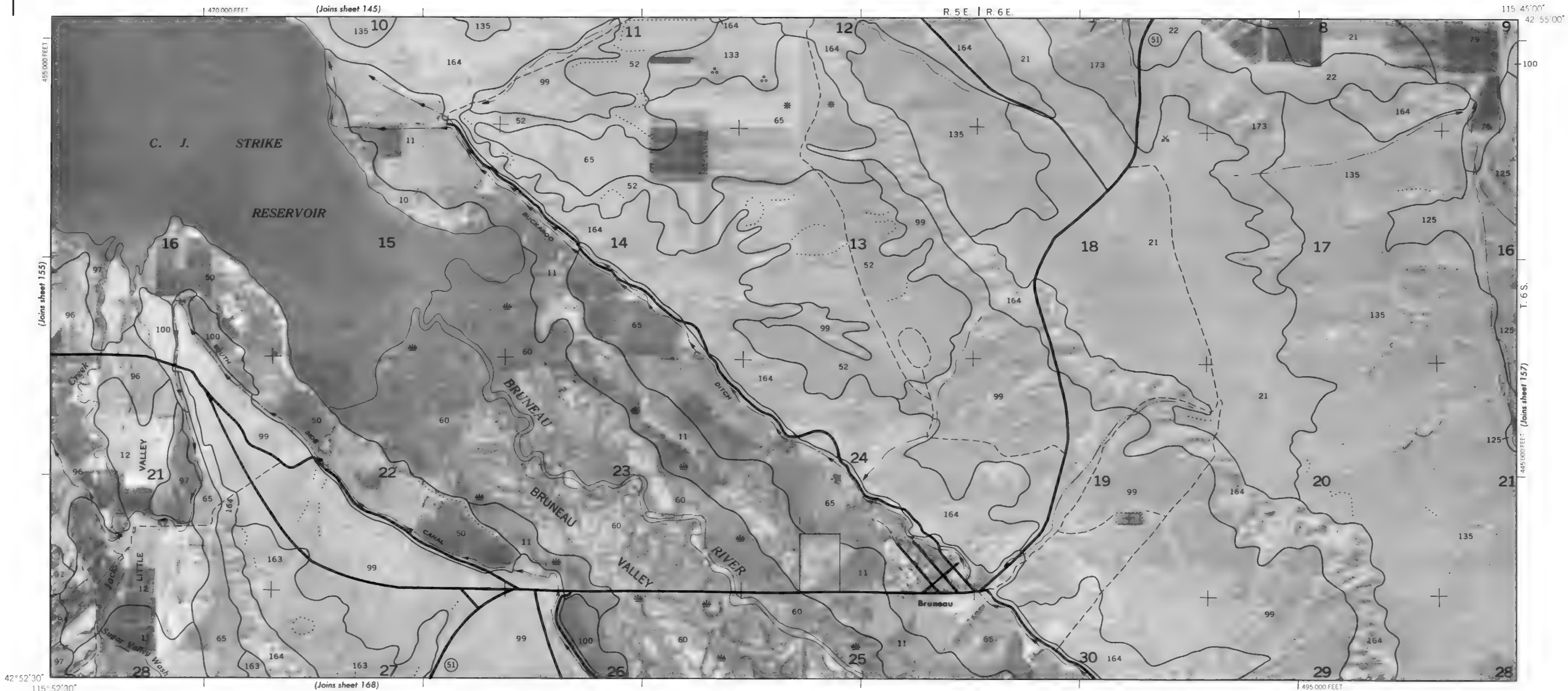


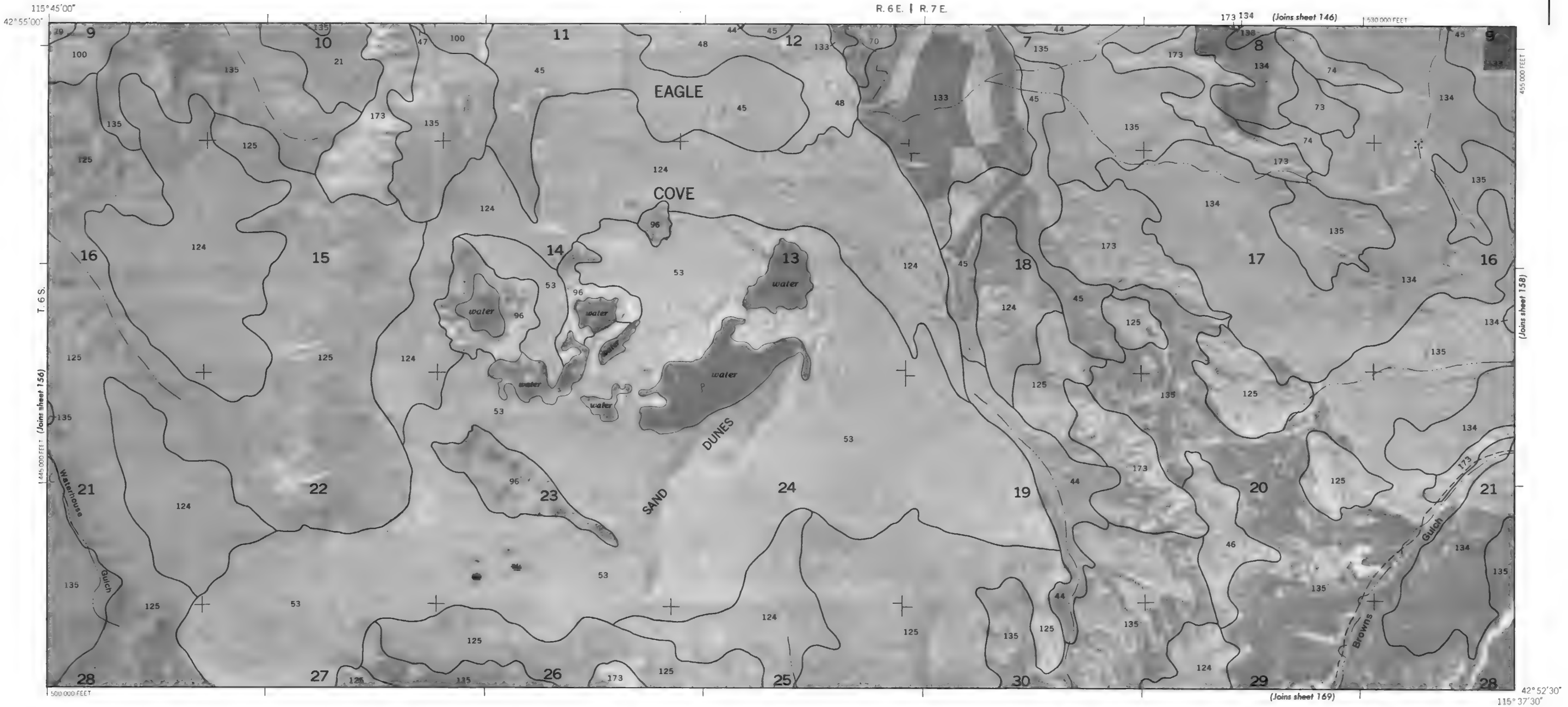


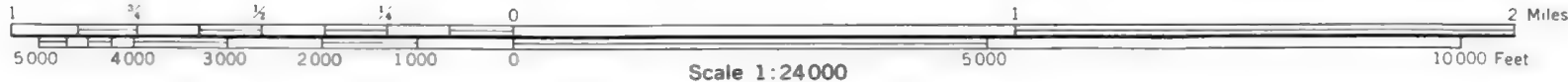
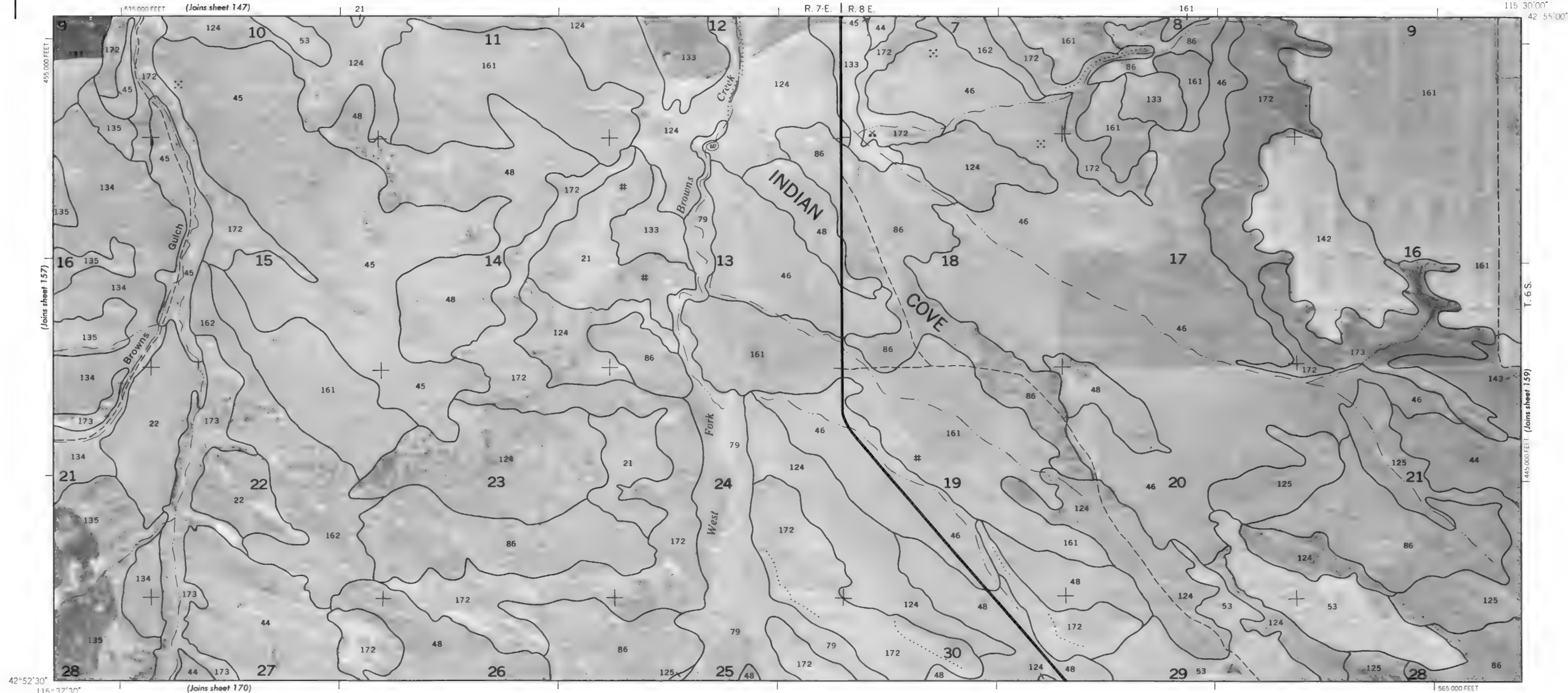




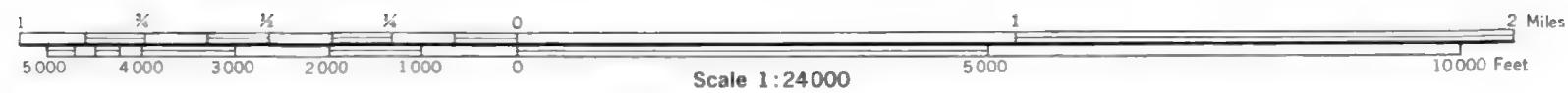


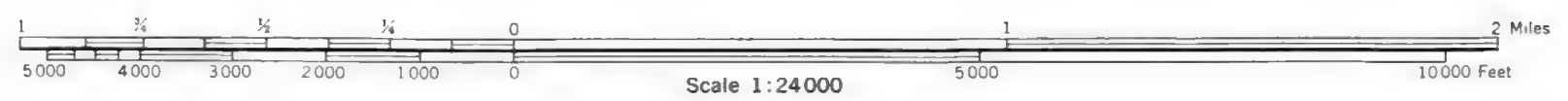
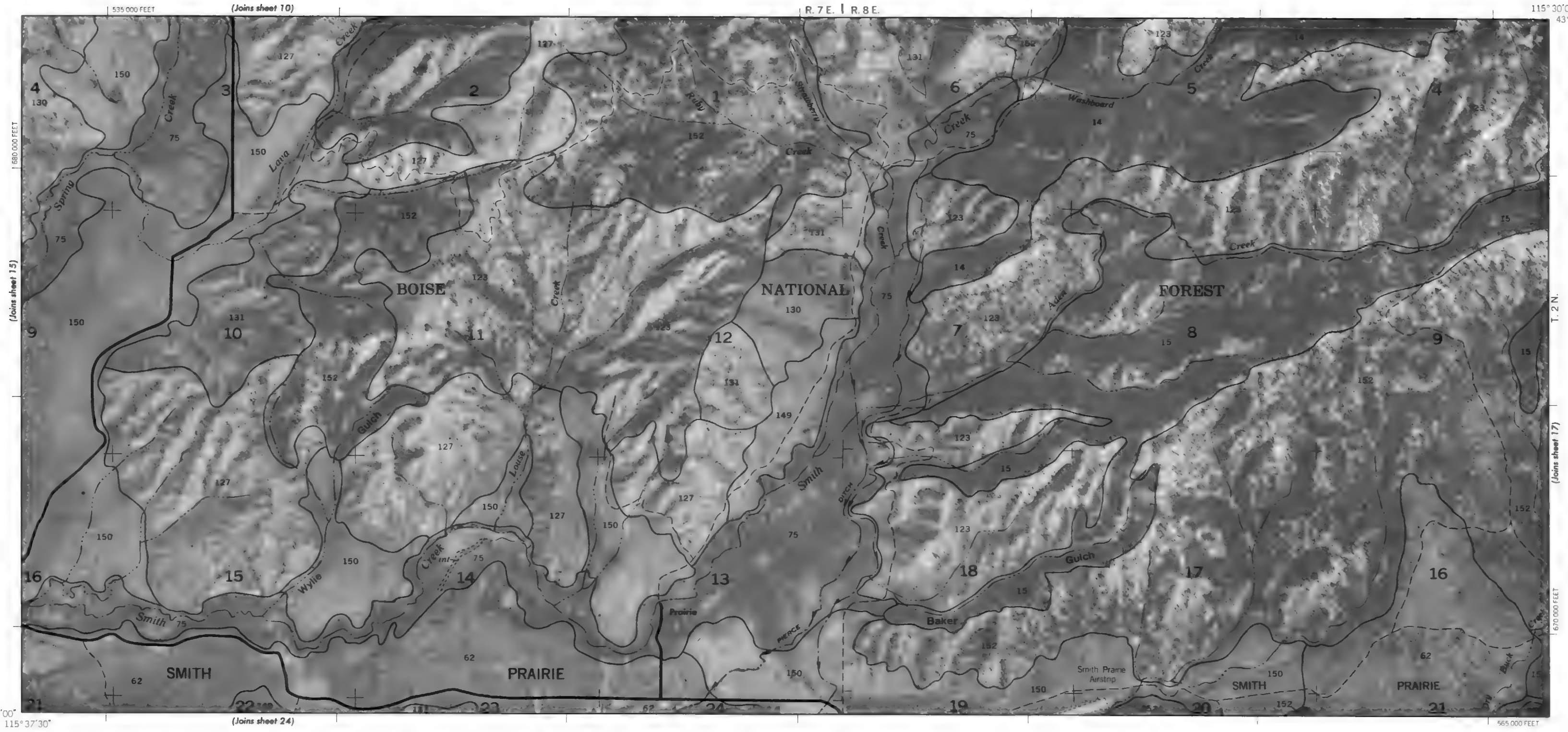


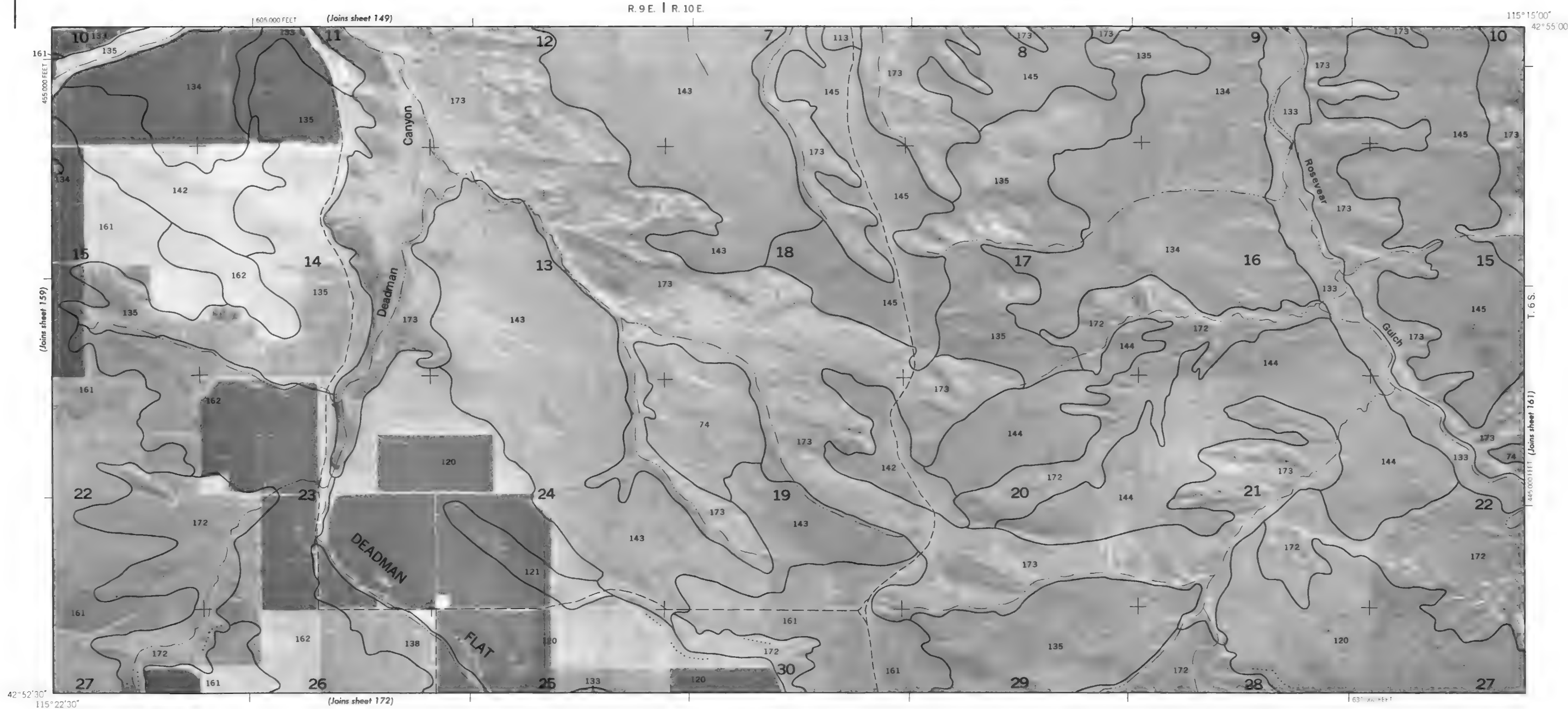




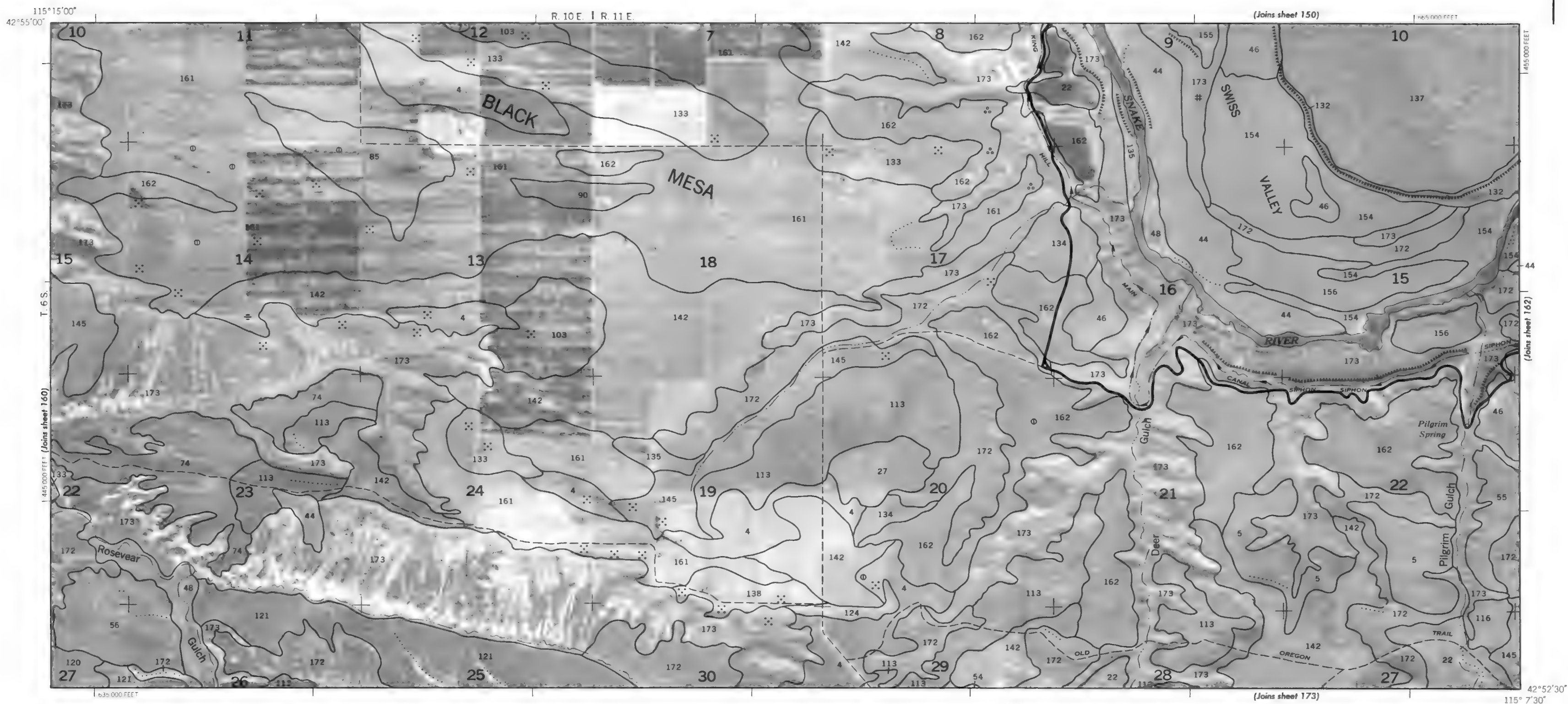










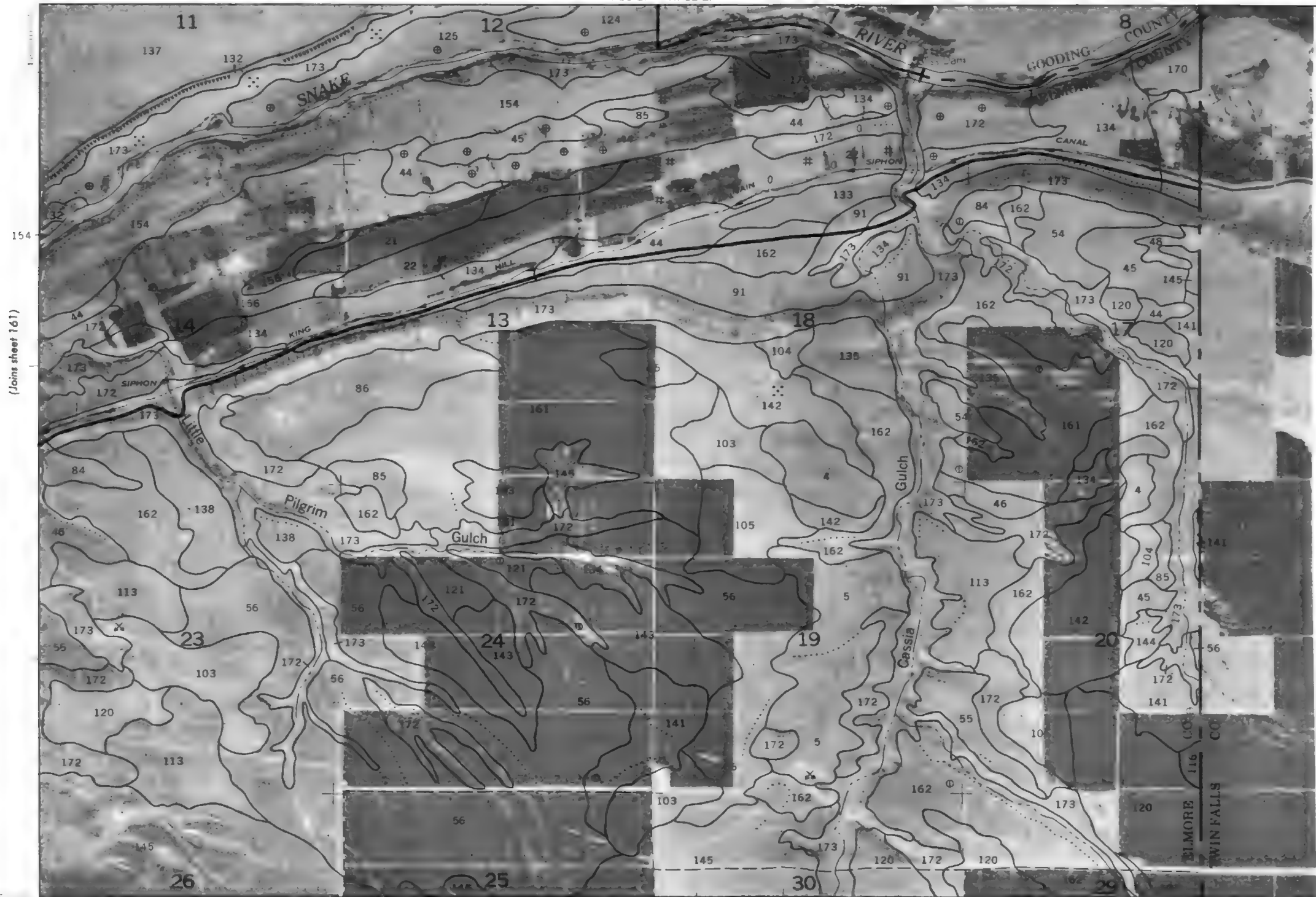




(Joins inset B, sheet 128)

R. 11 E. | R. 12 E.

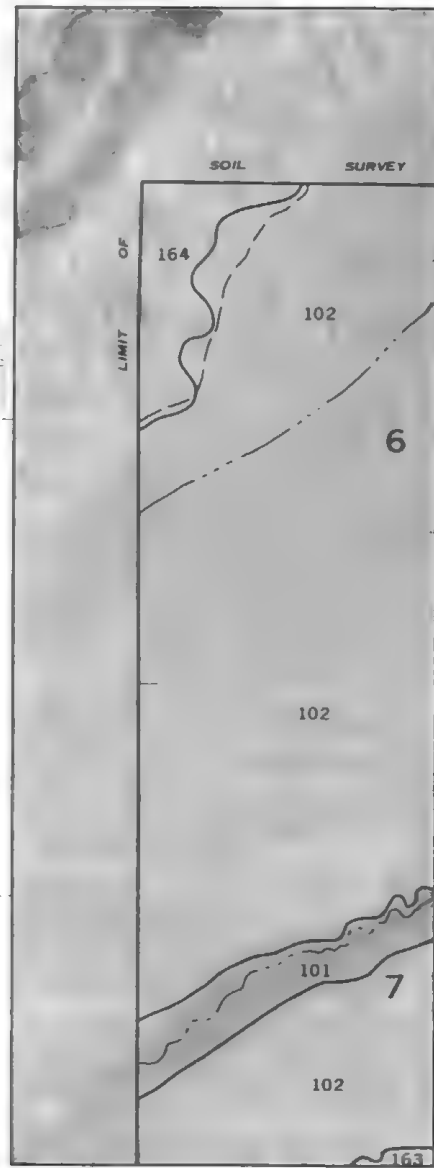
1.5



(Joins sheet 161)

(Joins sheet 174)

R. 2 W. | R. 1 W.



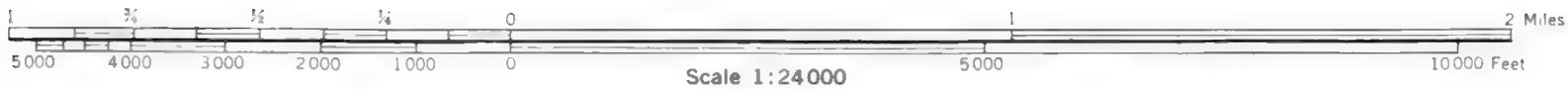
(Joins inset, sheet 85)

(Joins inset, sheet 174)

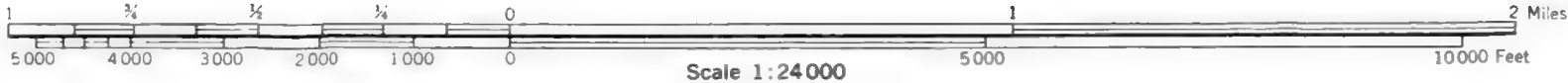
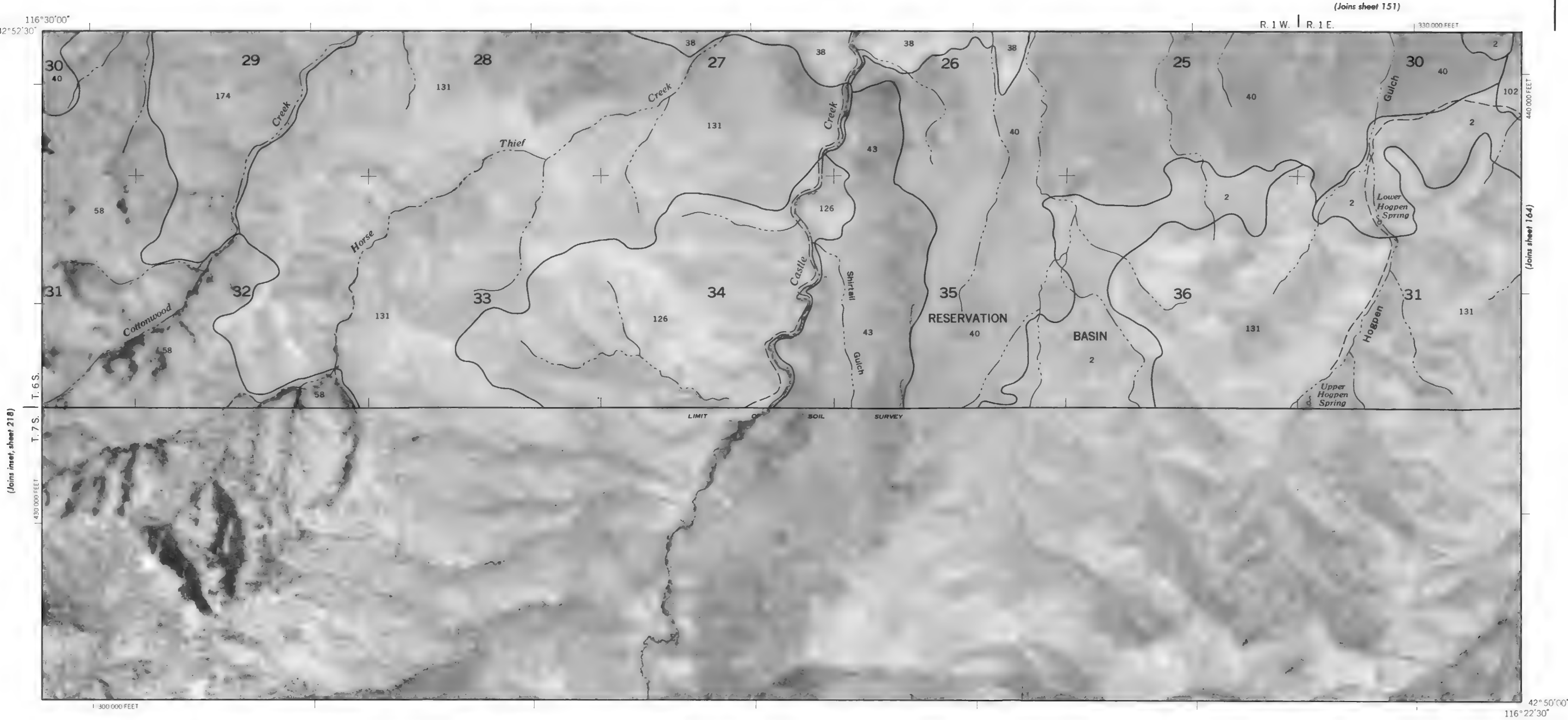
3000 AND 5000 FOOT GRID T.C.

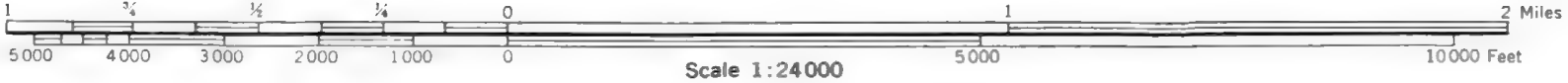
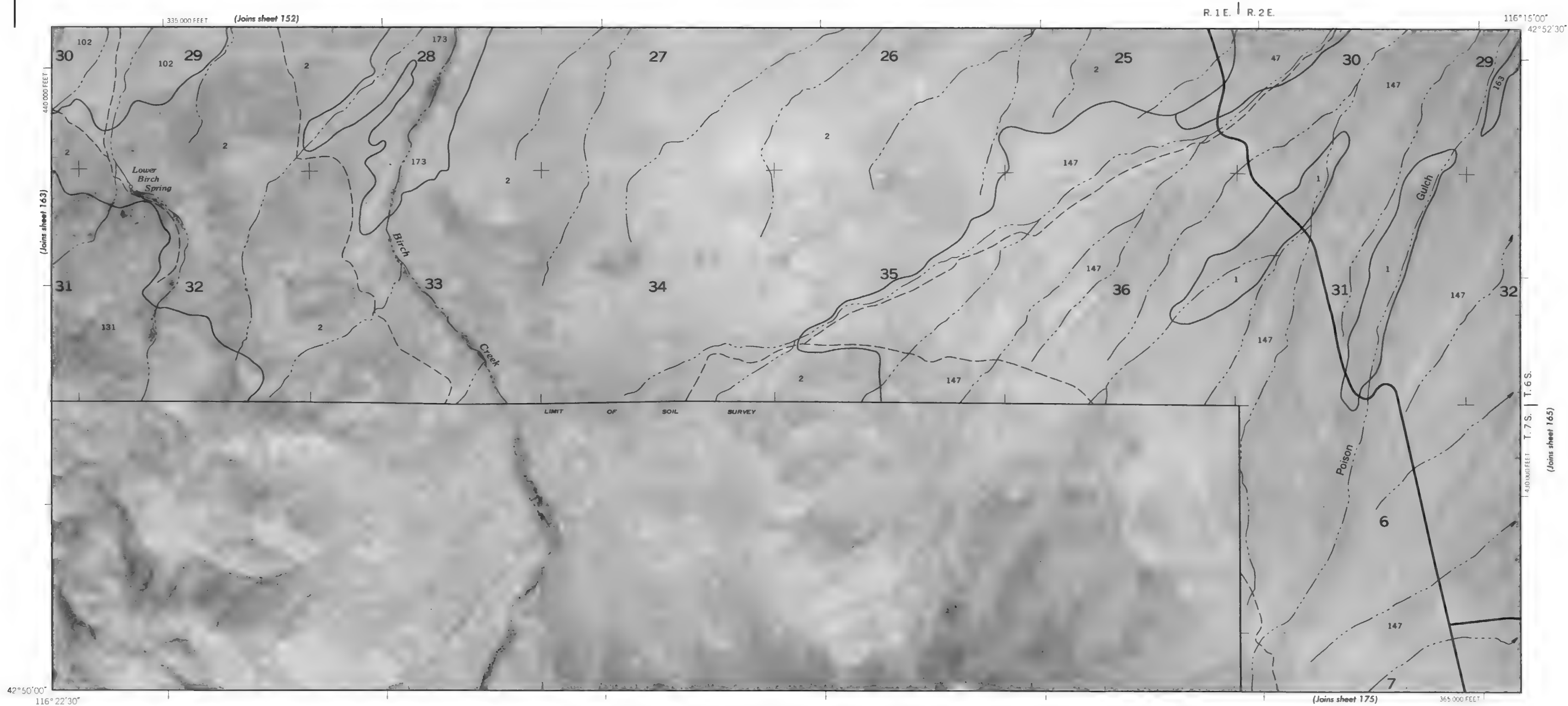
T. 6 S.

T. 4 S. SUBJECT

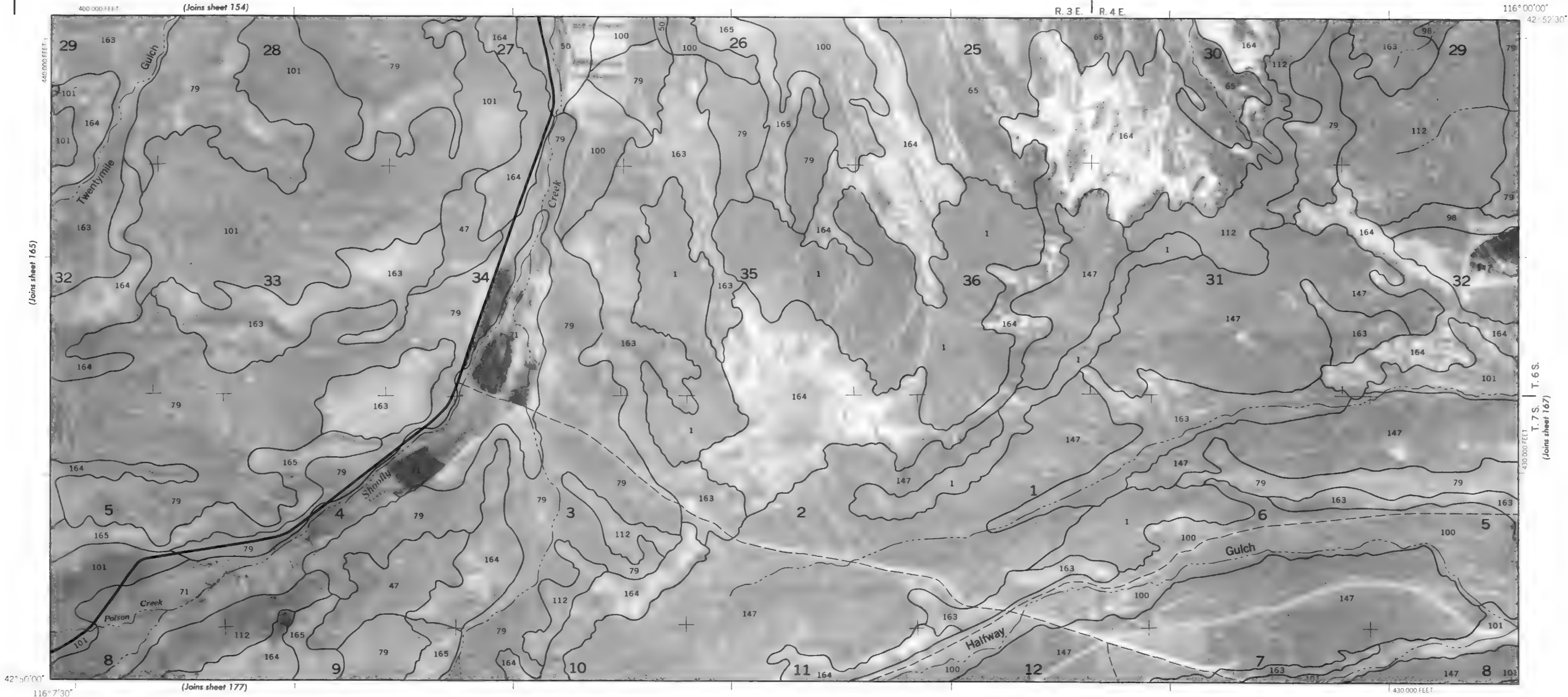




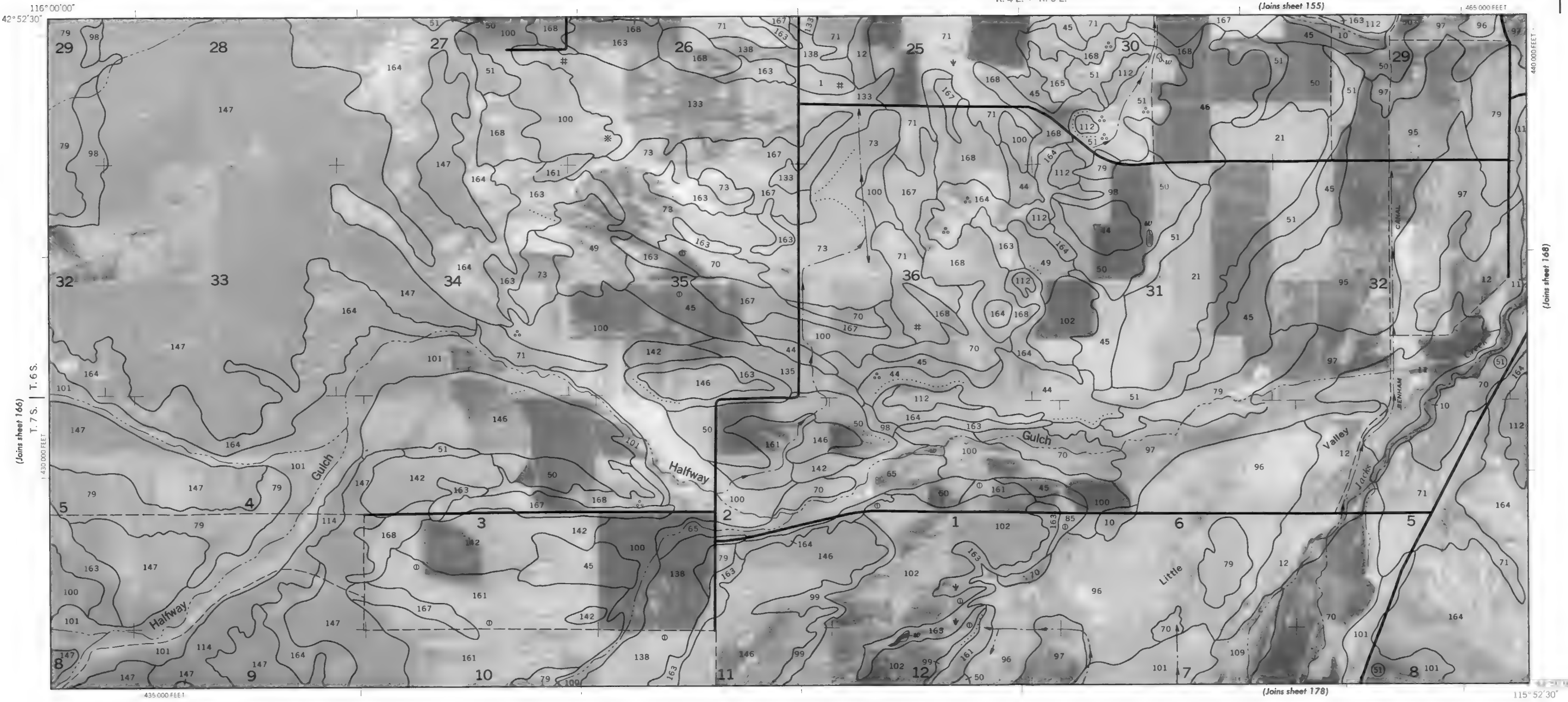


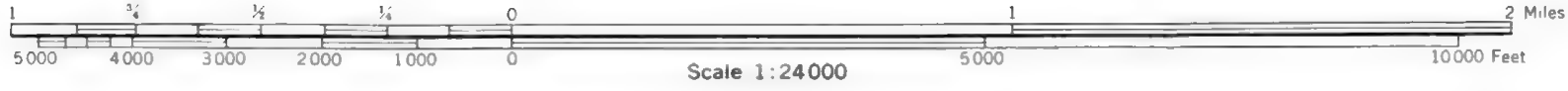
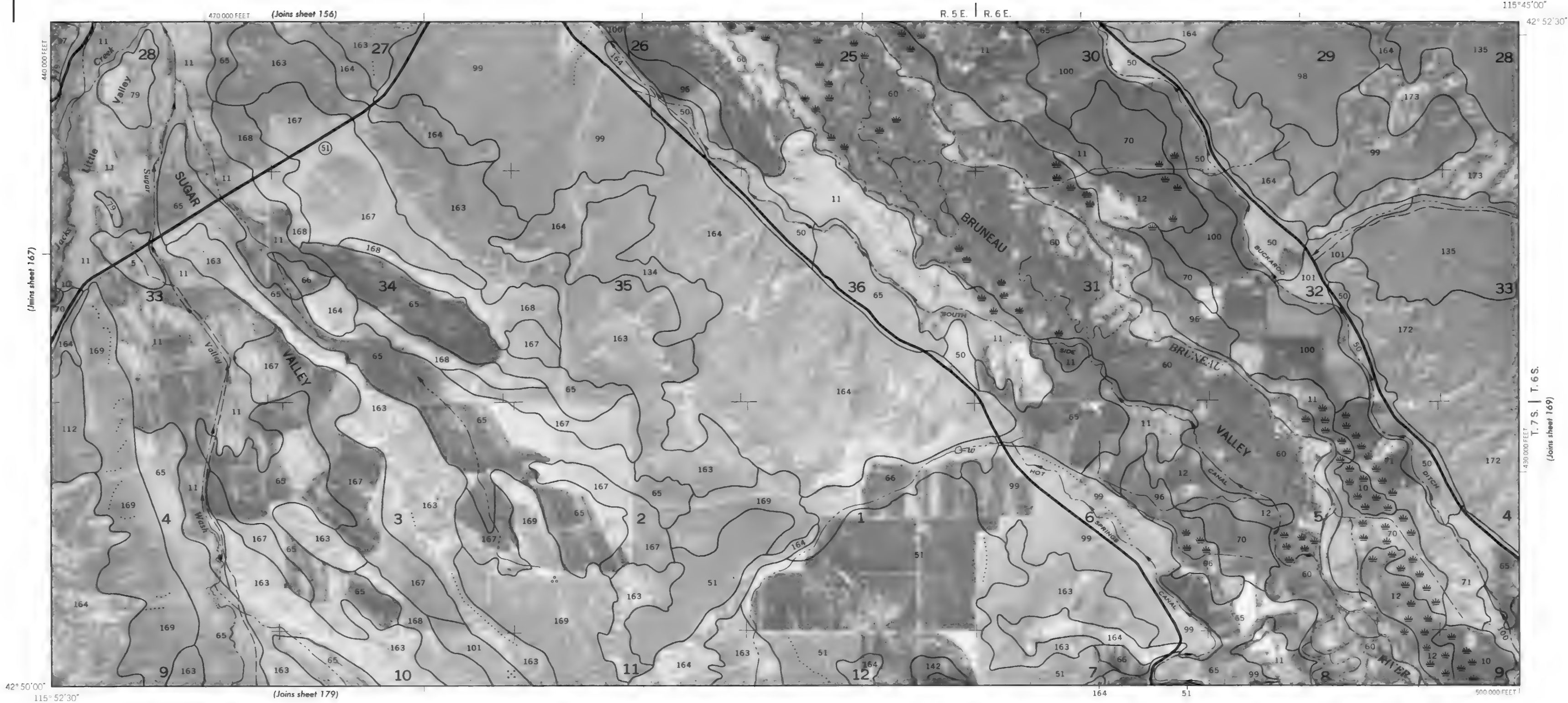












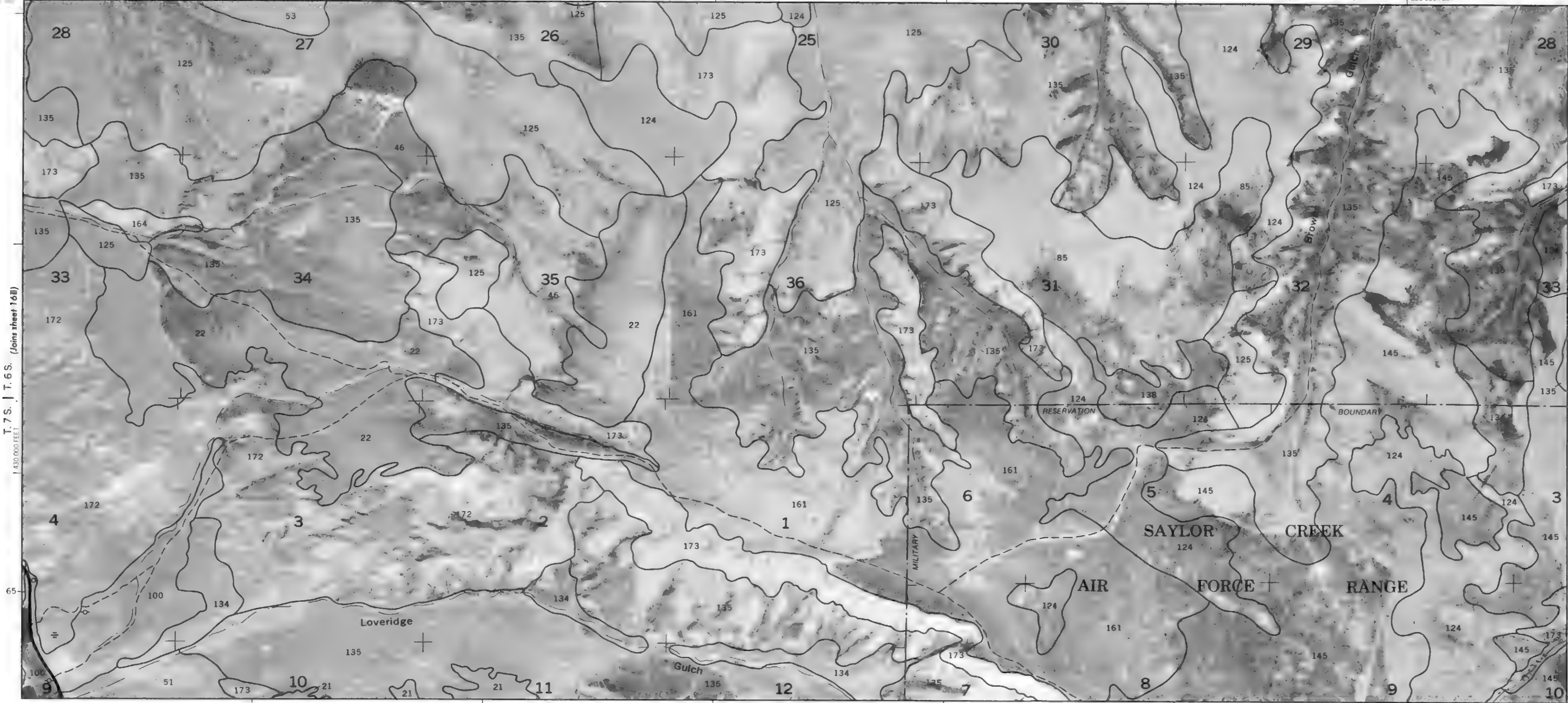


115° 45'00"

R. 6 E. | R. 7 E.

(Joins sheet 157)

530 000 FEET



T. 7 S. | T. 6 S. (Joins sheet 168)

440 000 FEET | (Joins sheet 170)

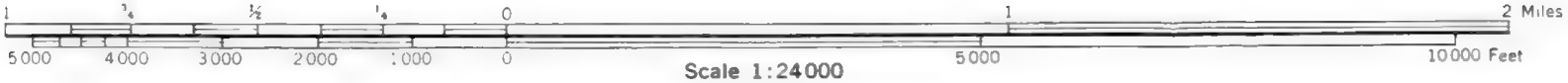
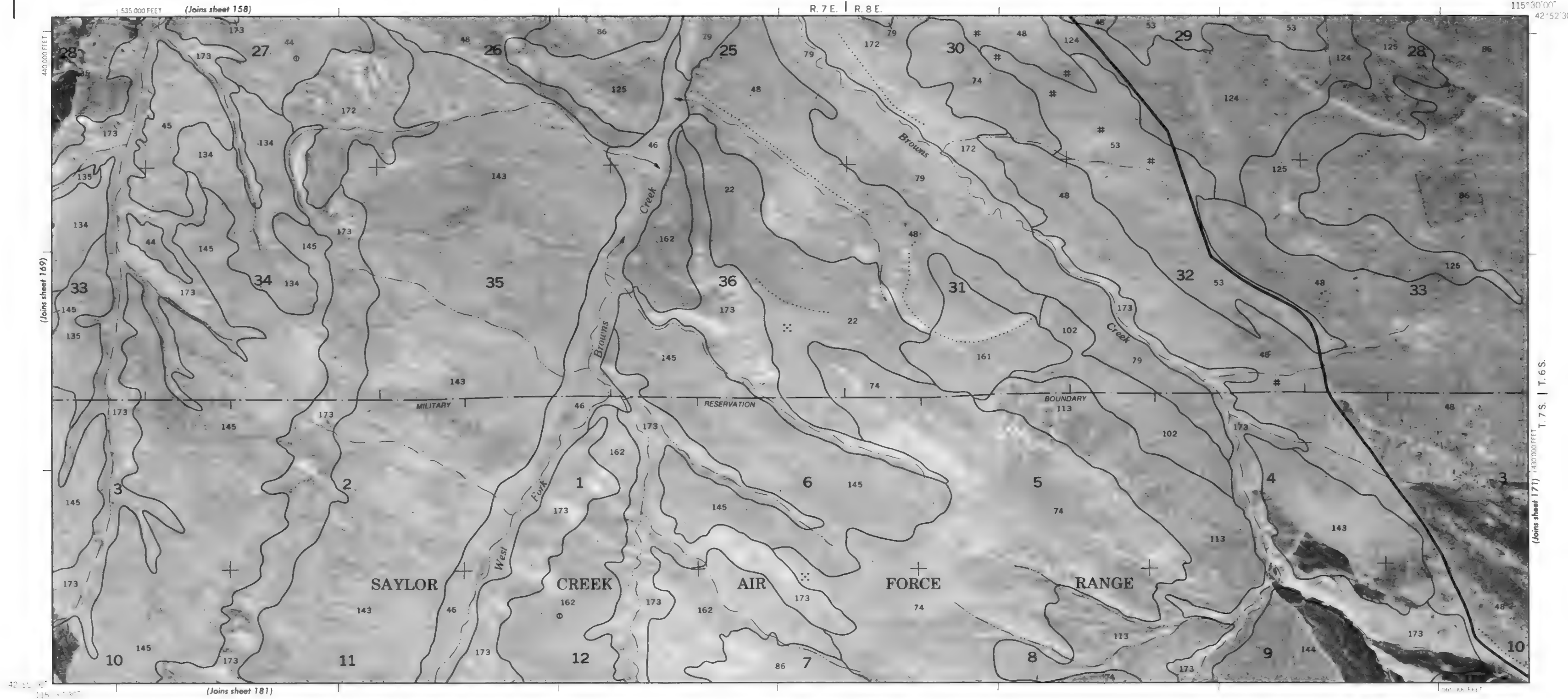
65

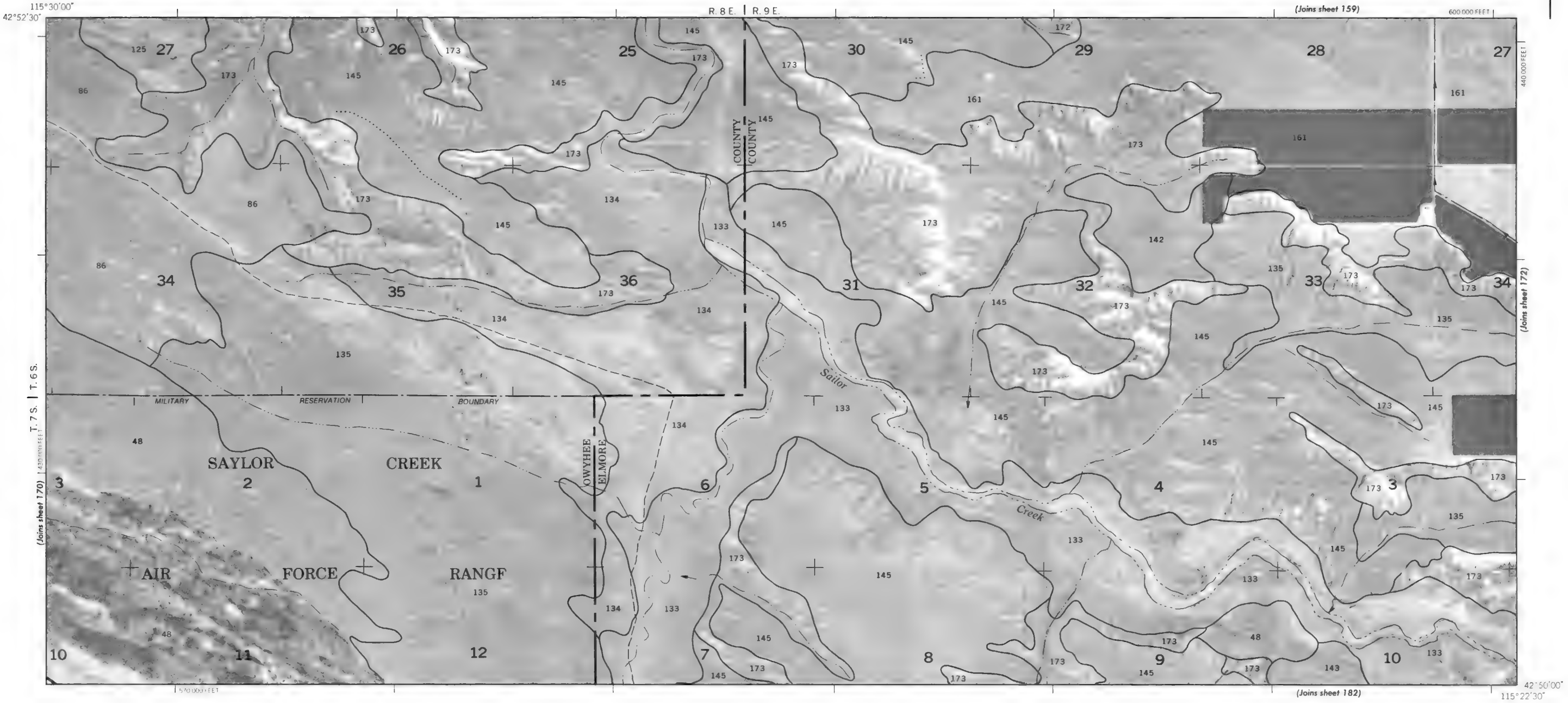
42° 50'00"  
115° 37'30"

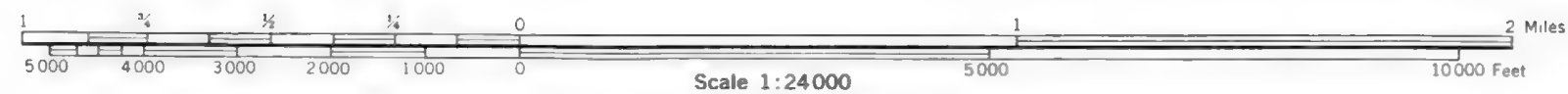
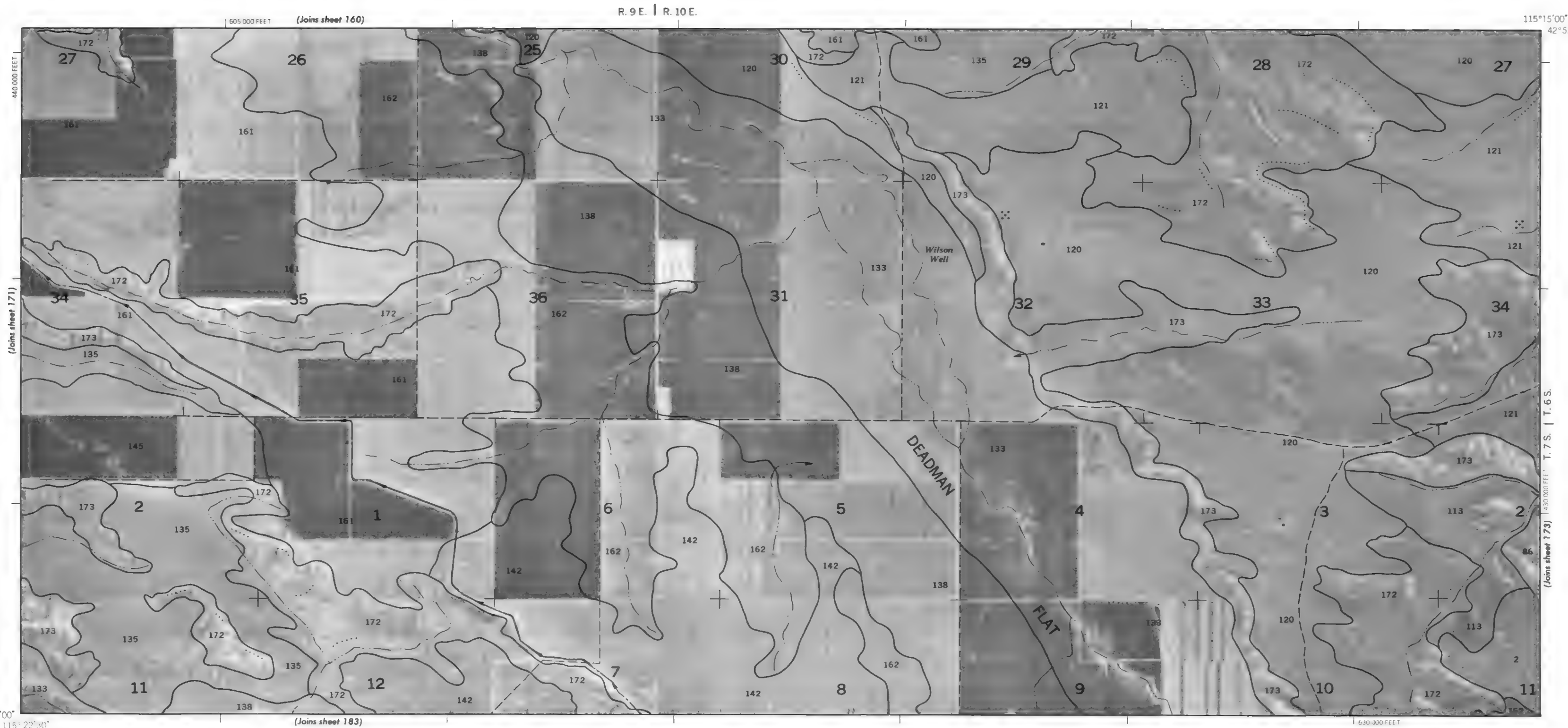




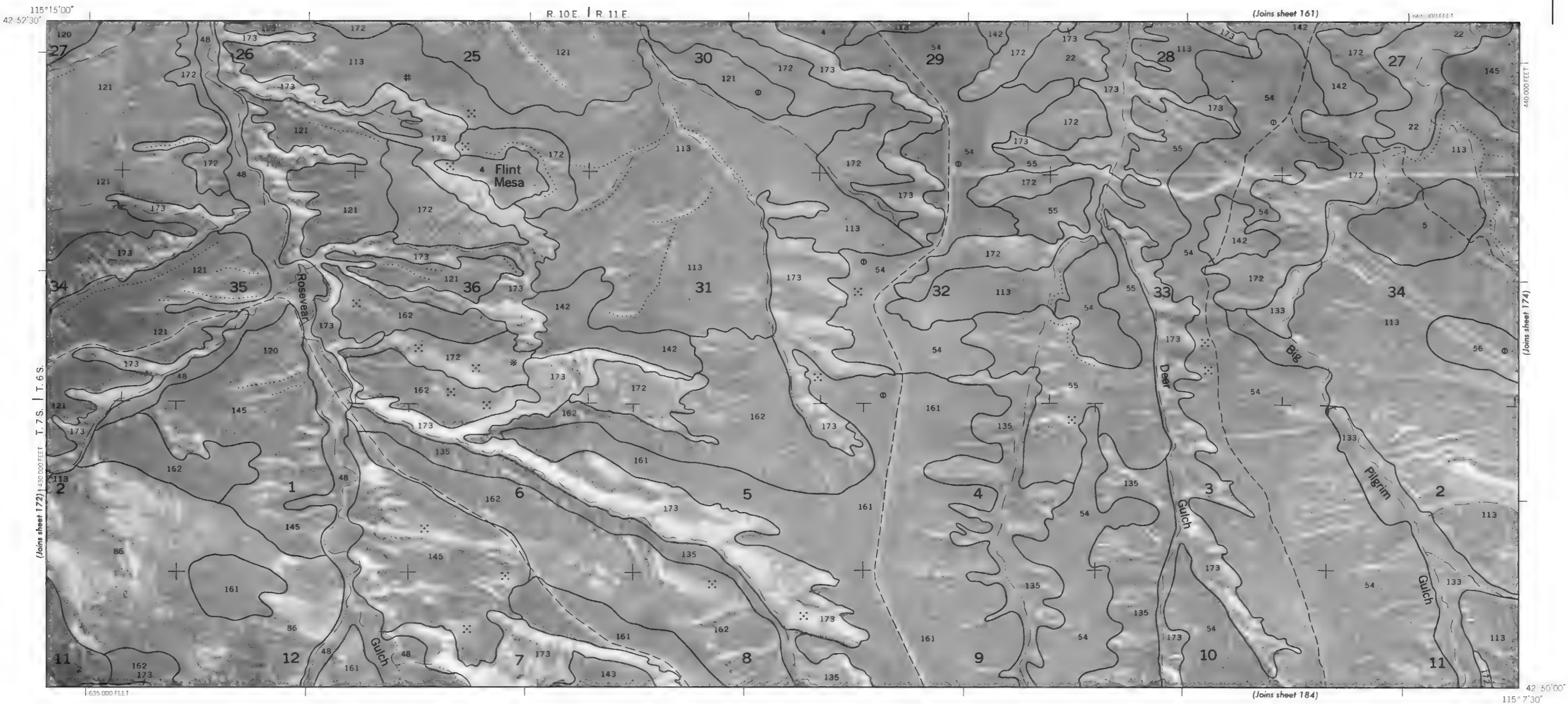


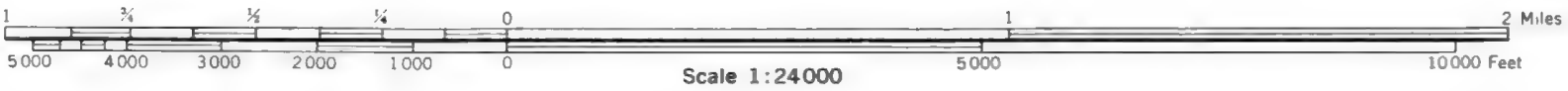
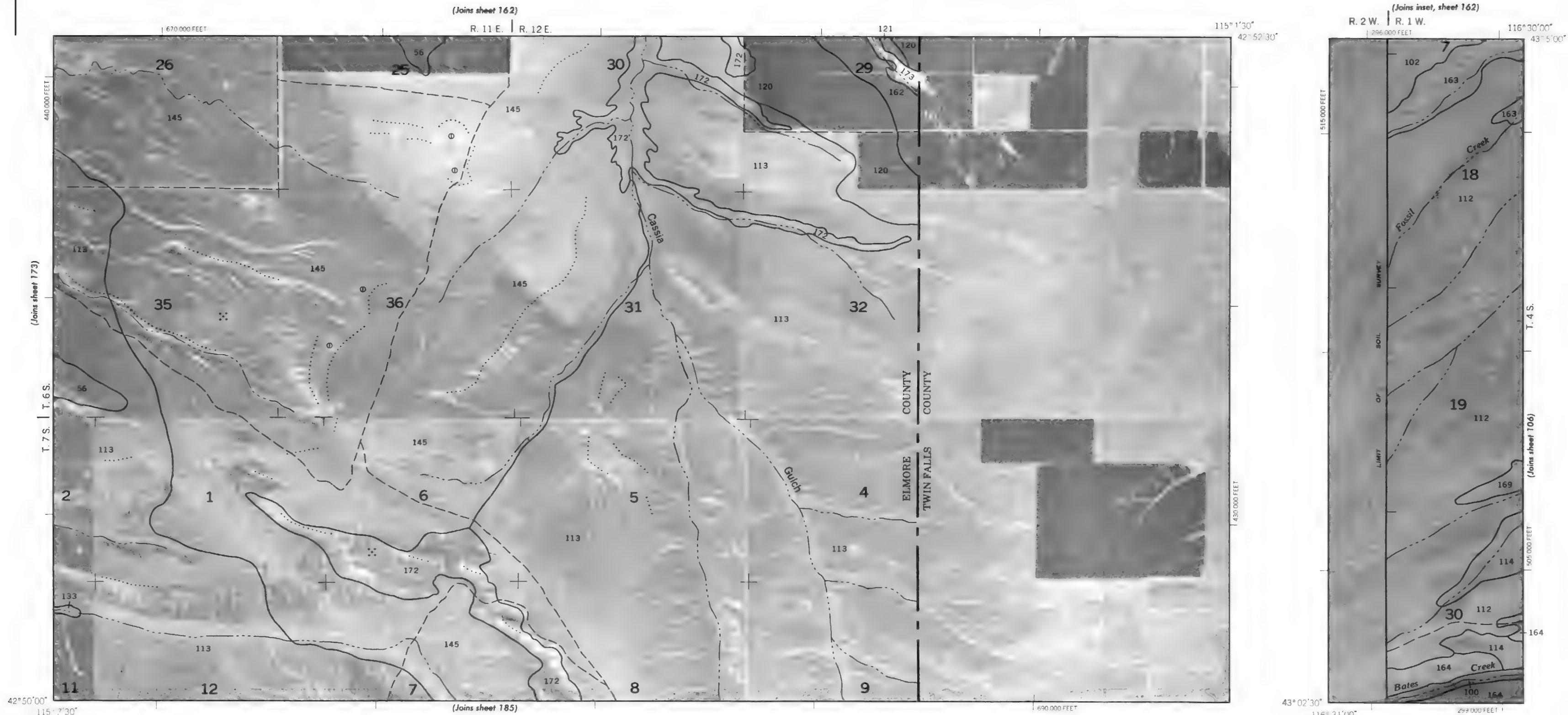


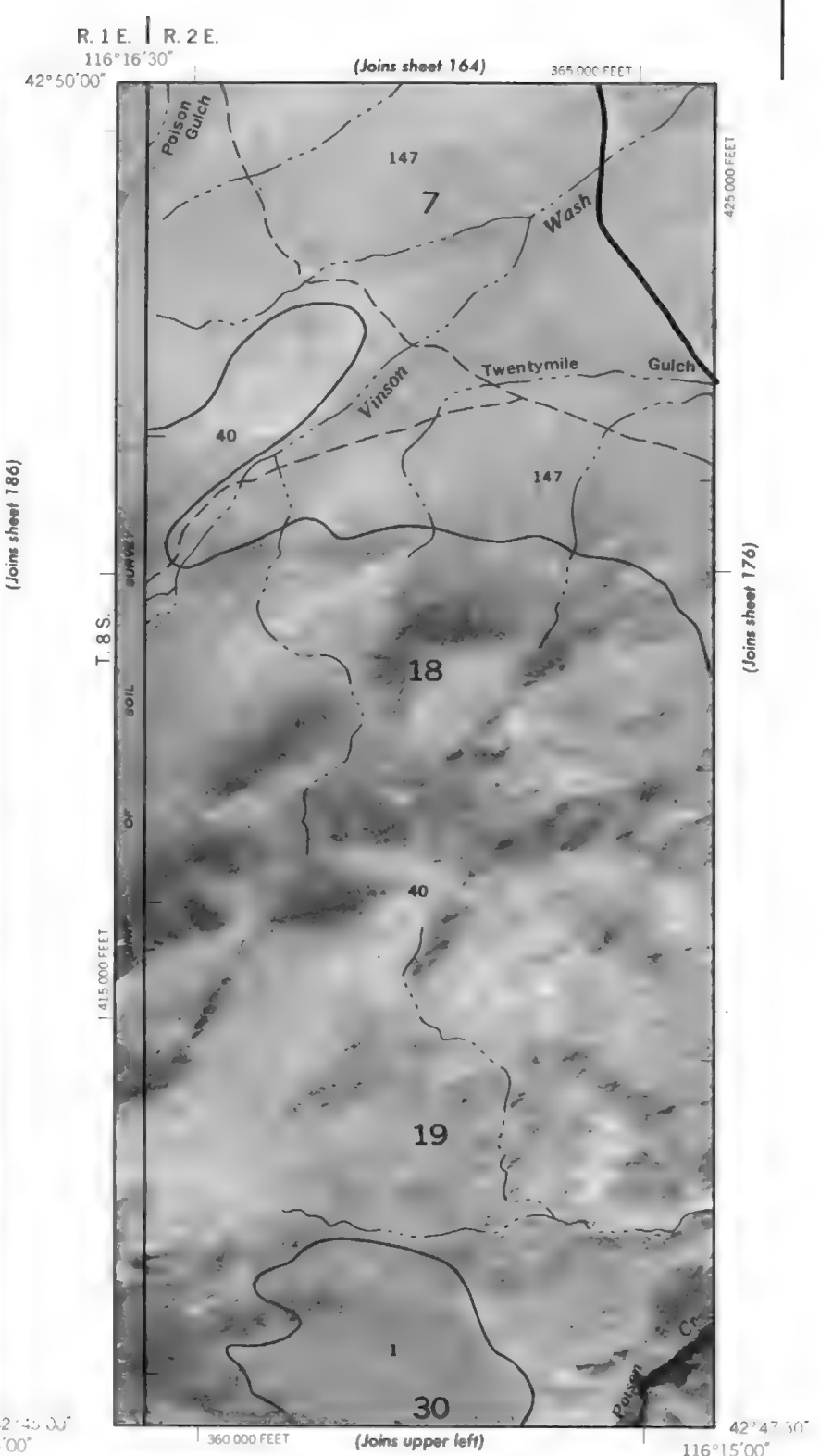




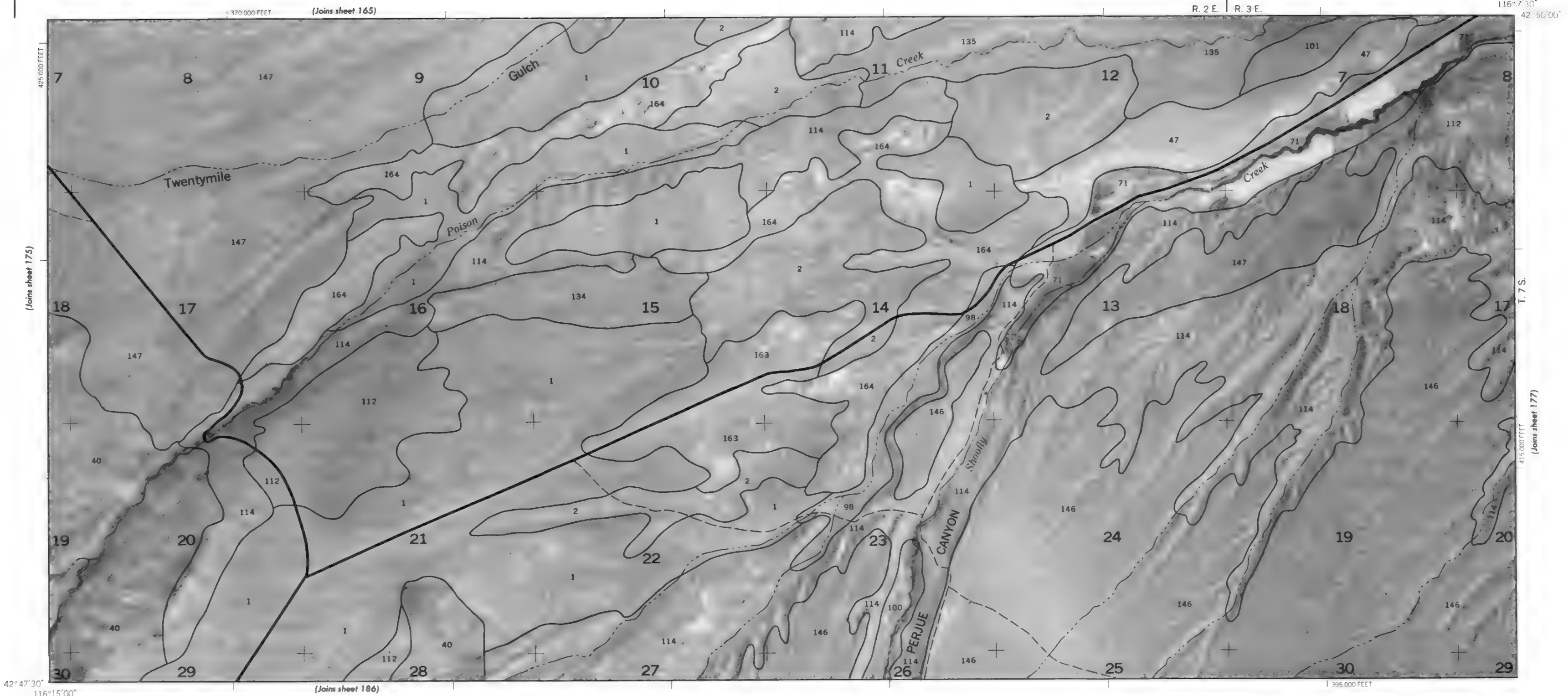


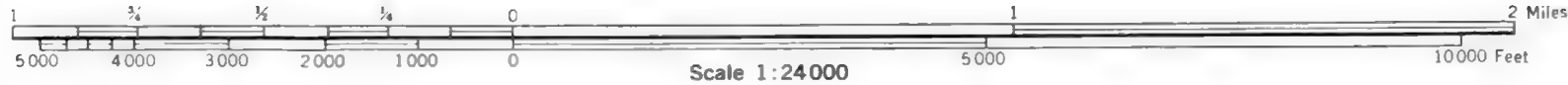
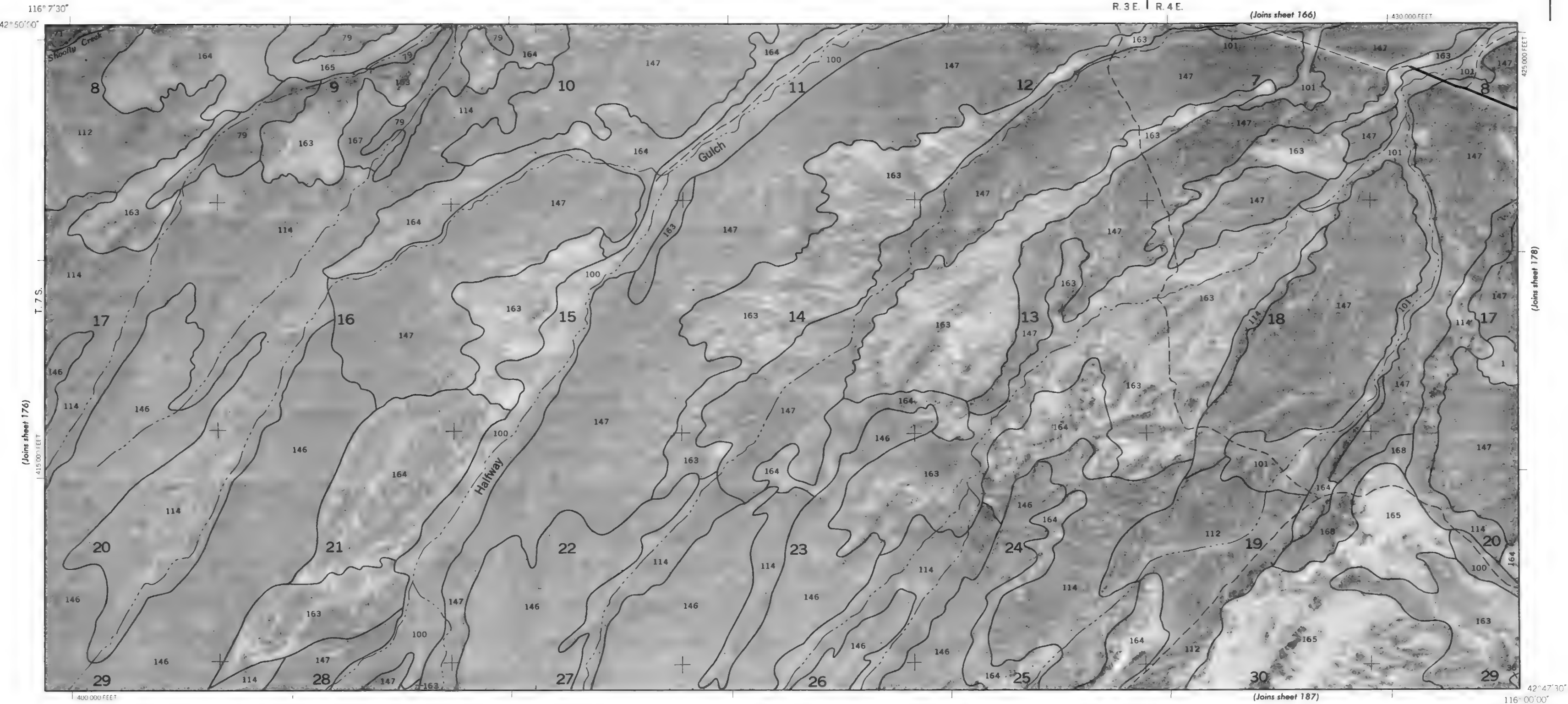




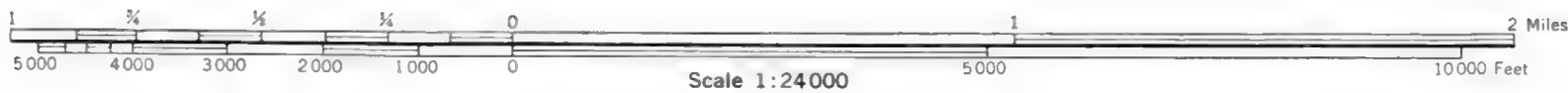


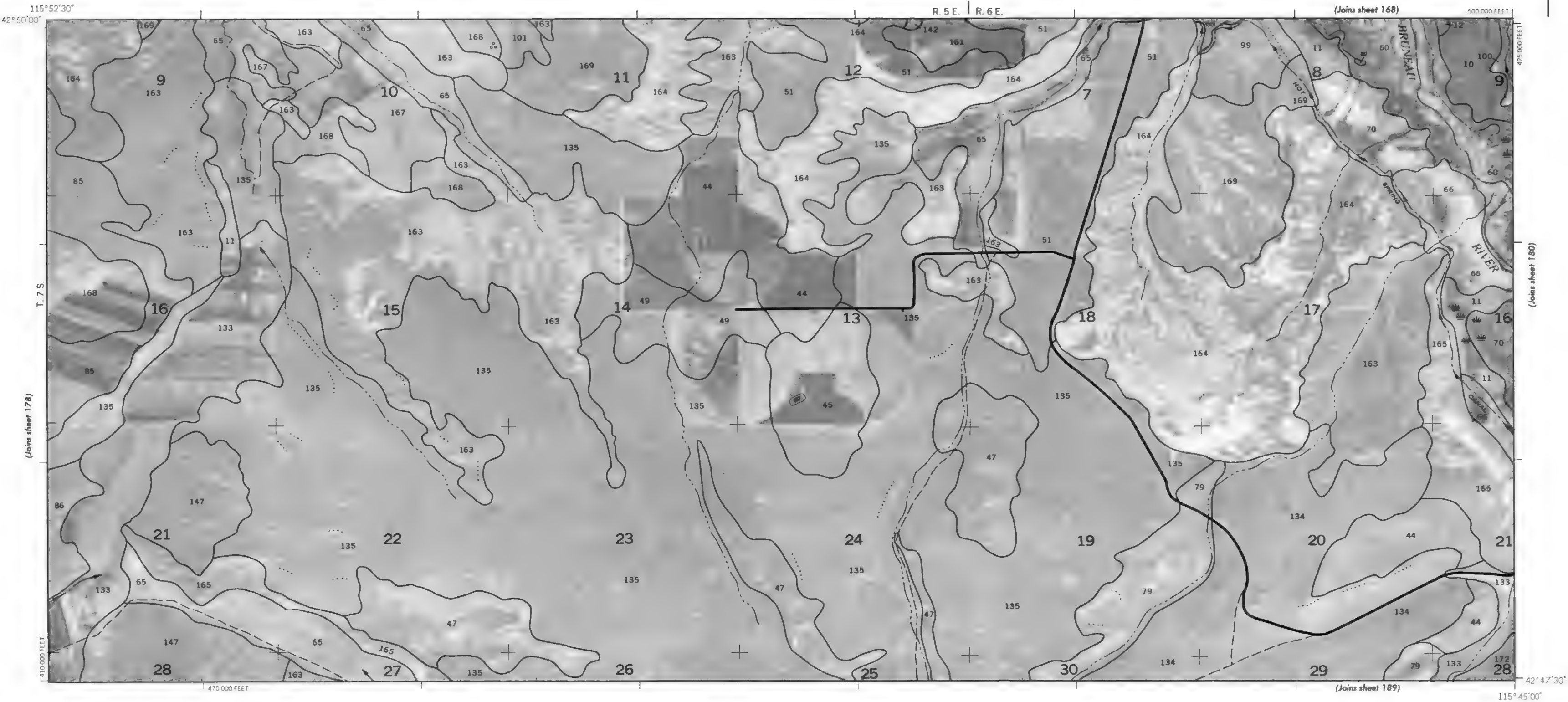




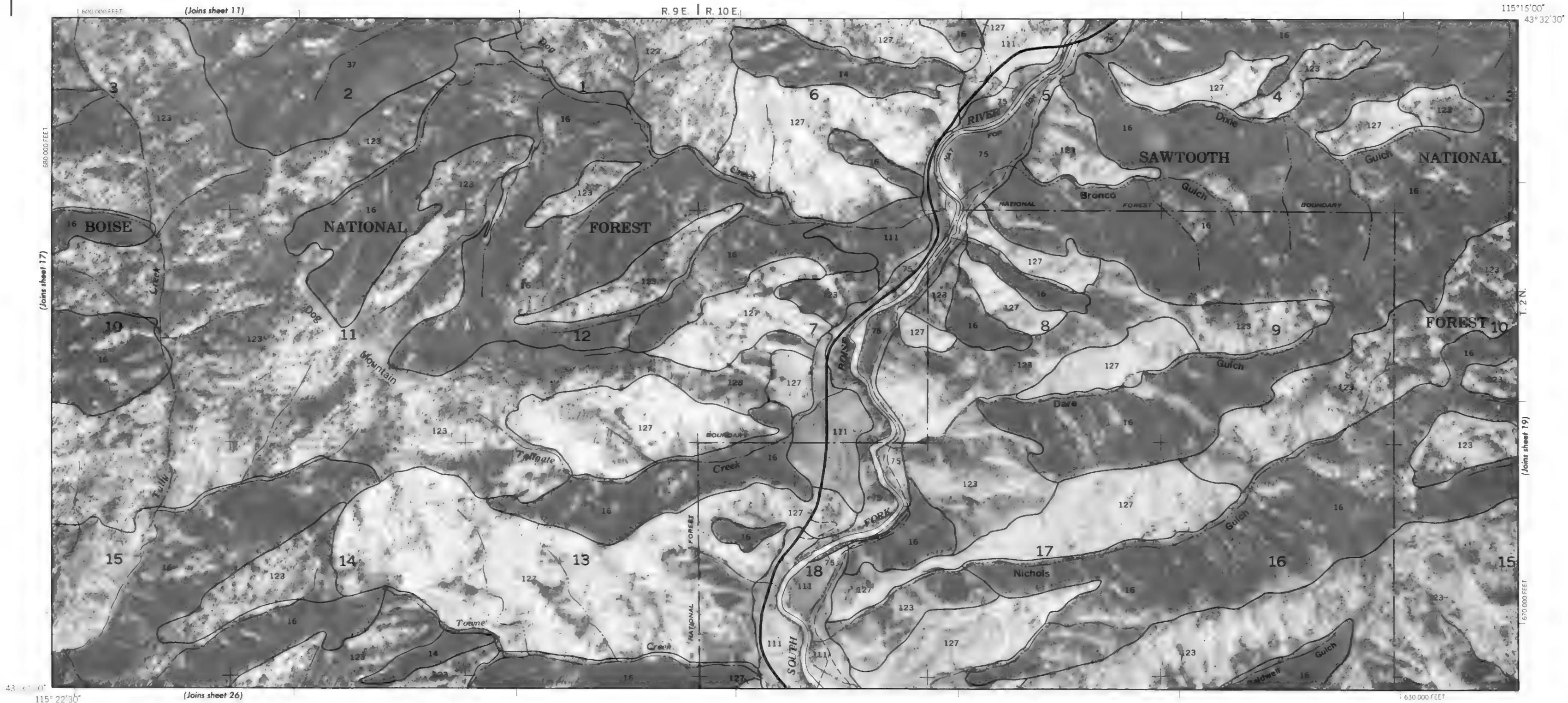


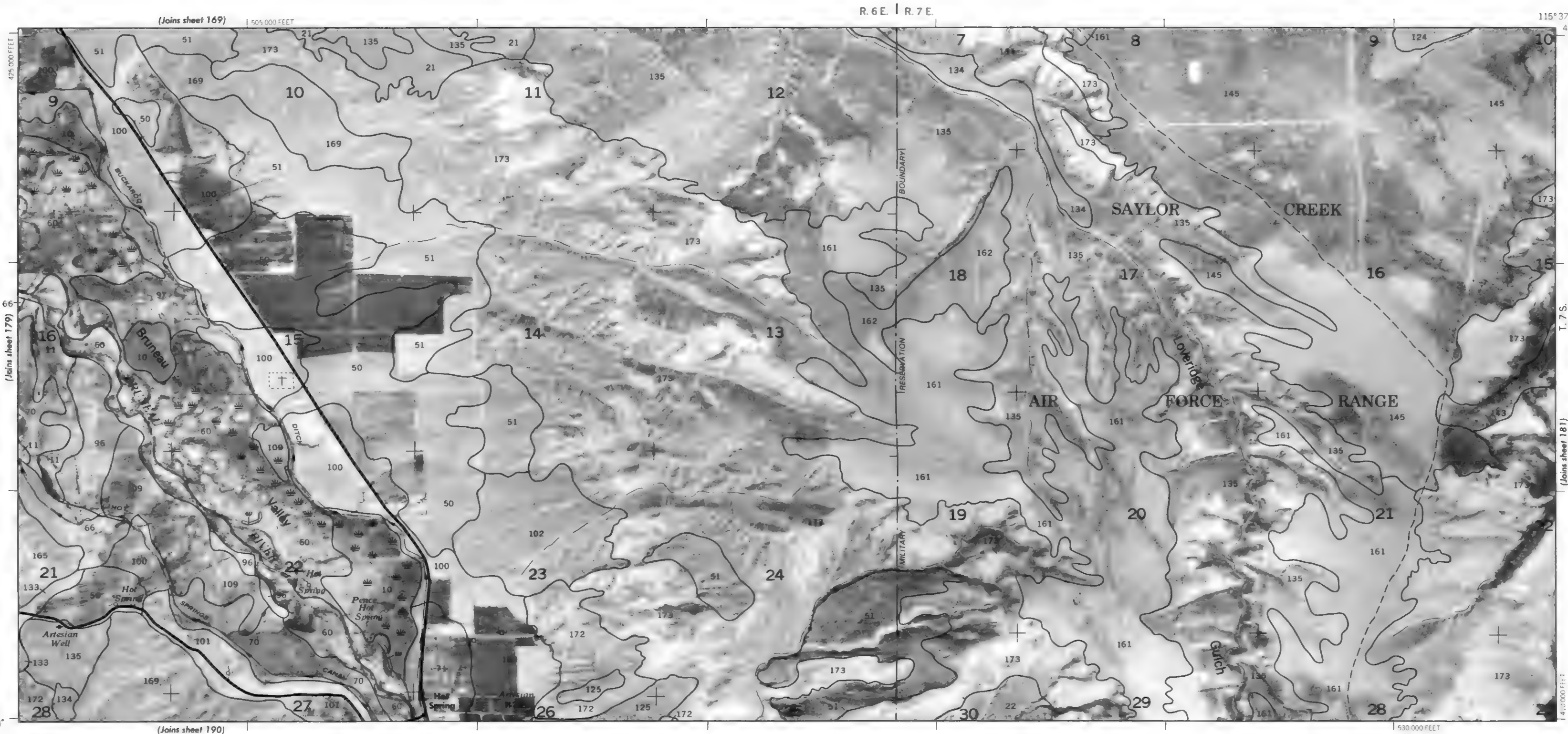




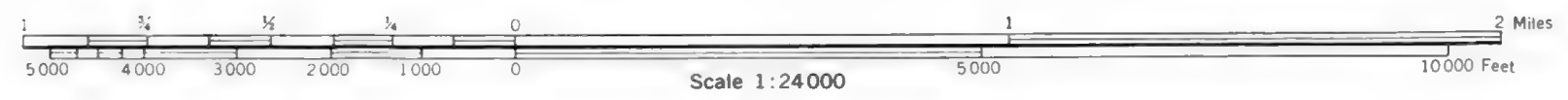


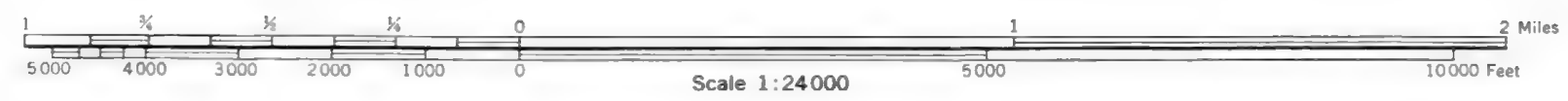


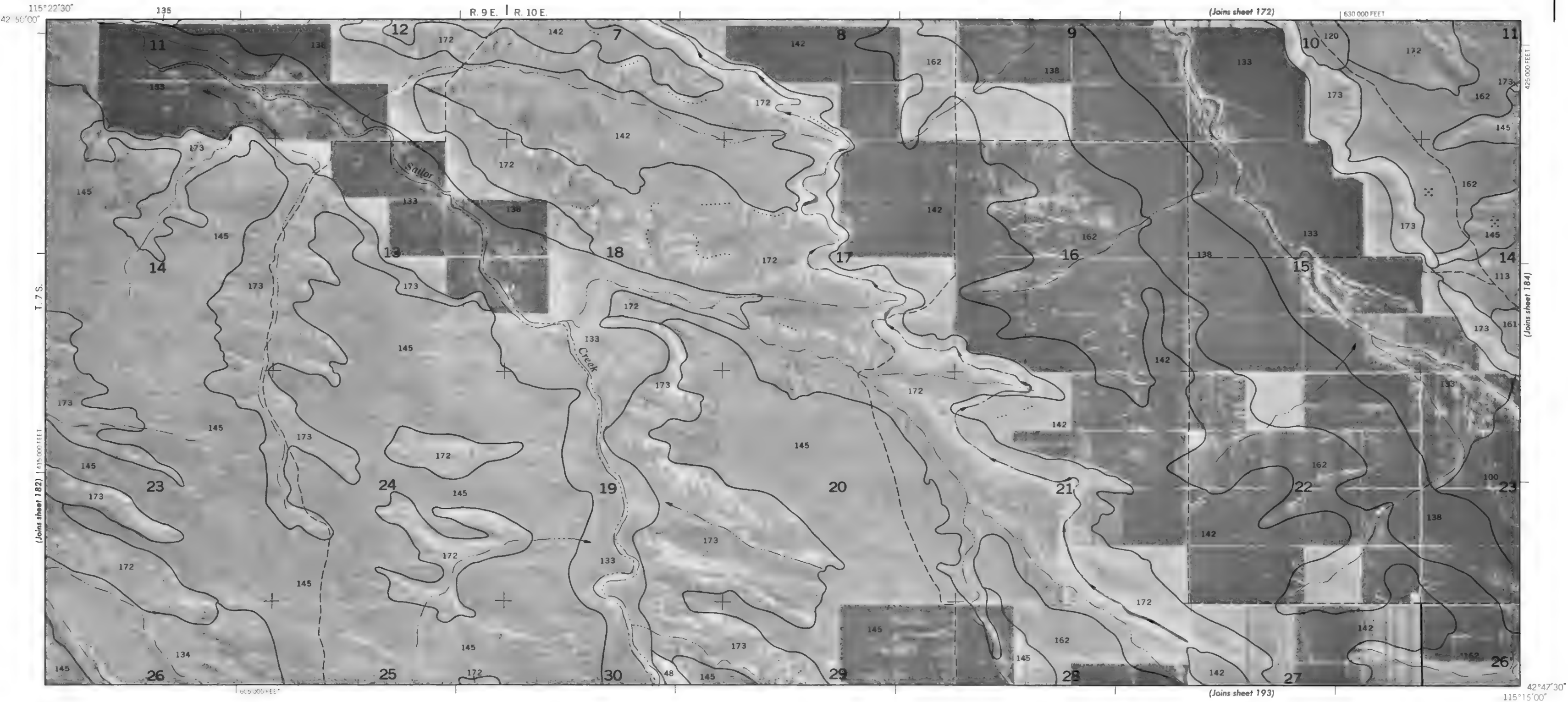




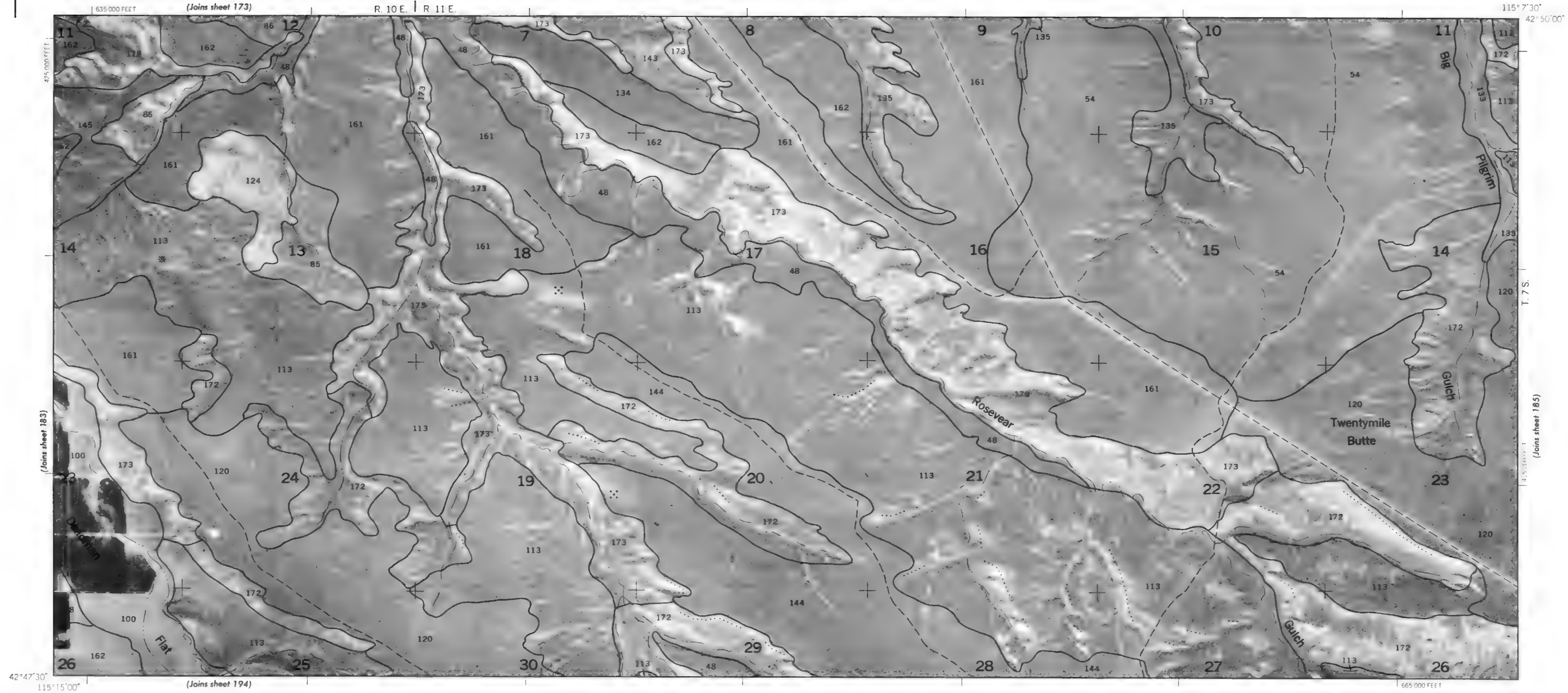


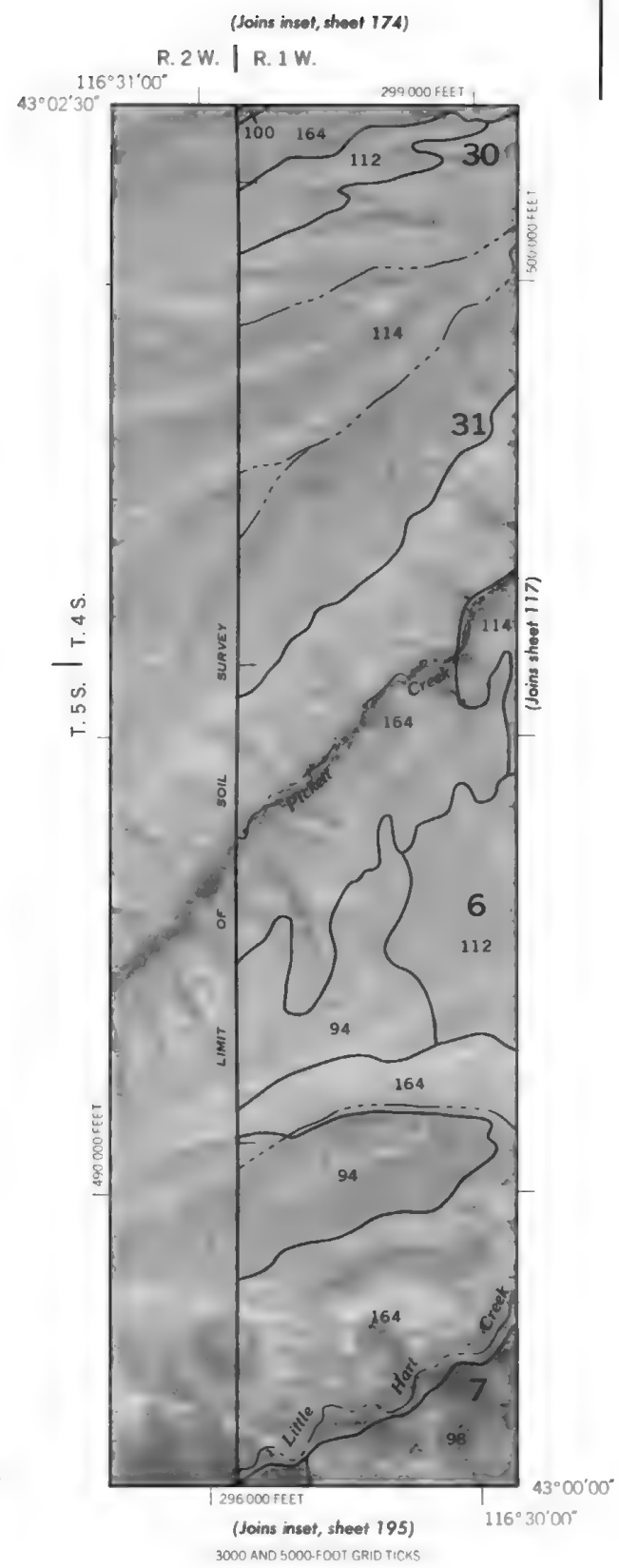
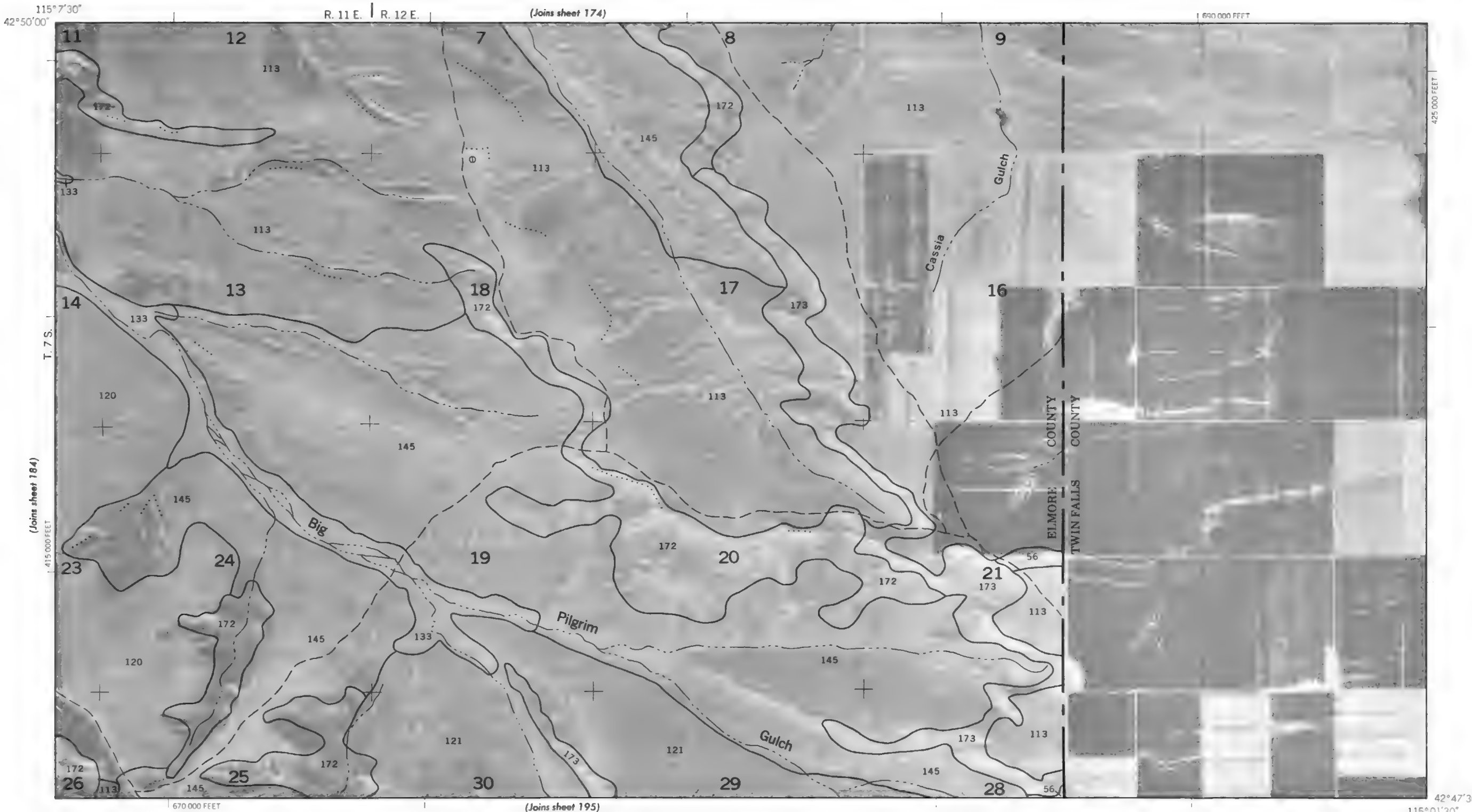


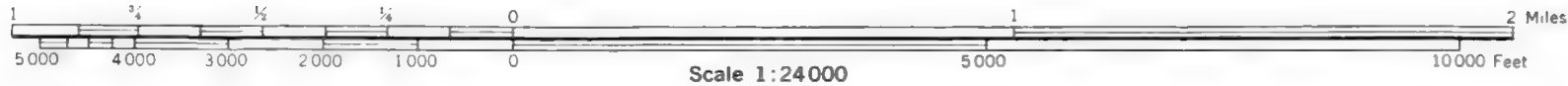
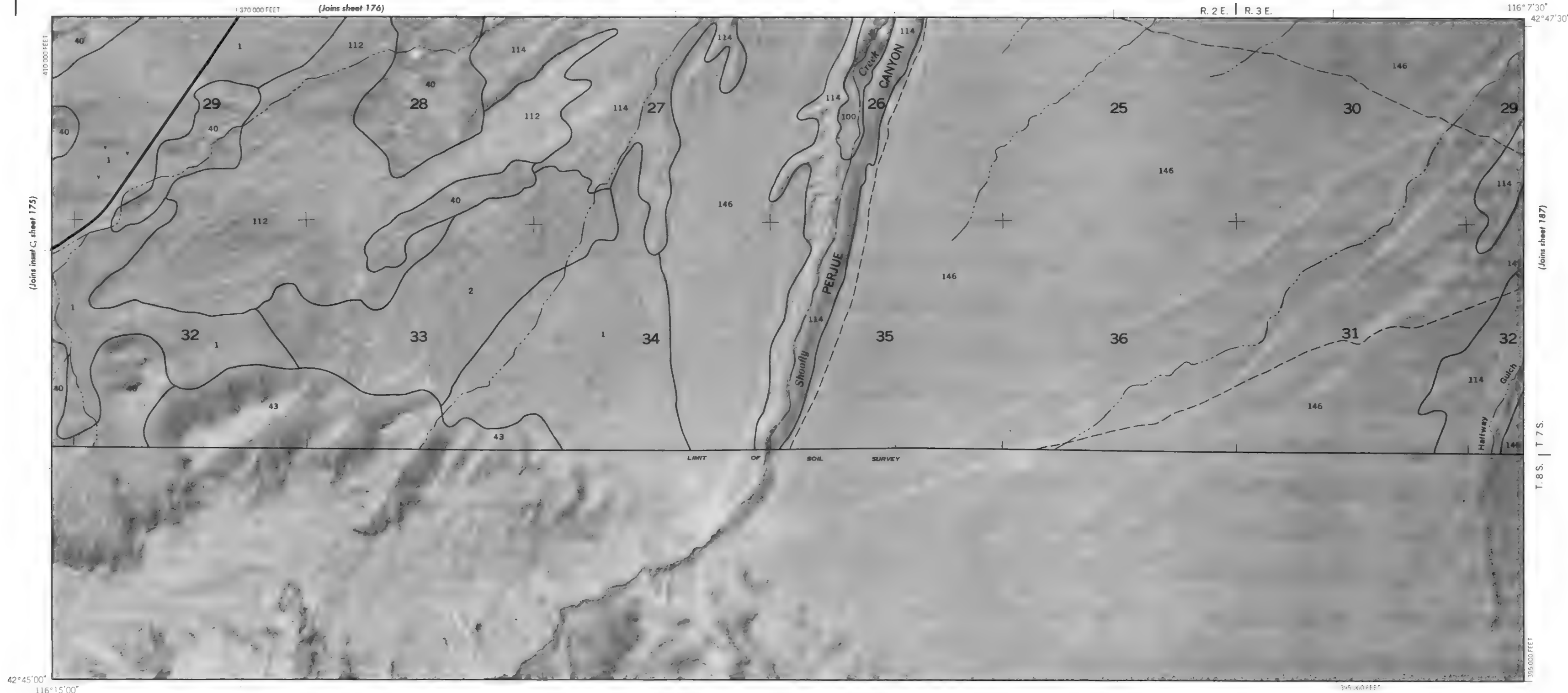




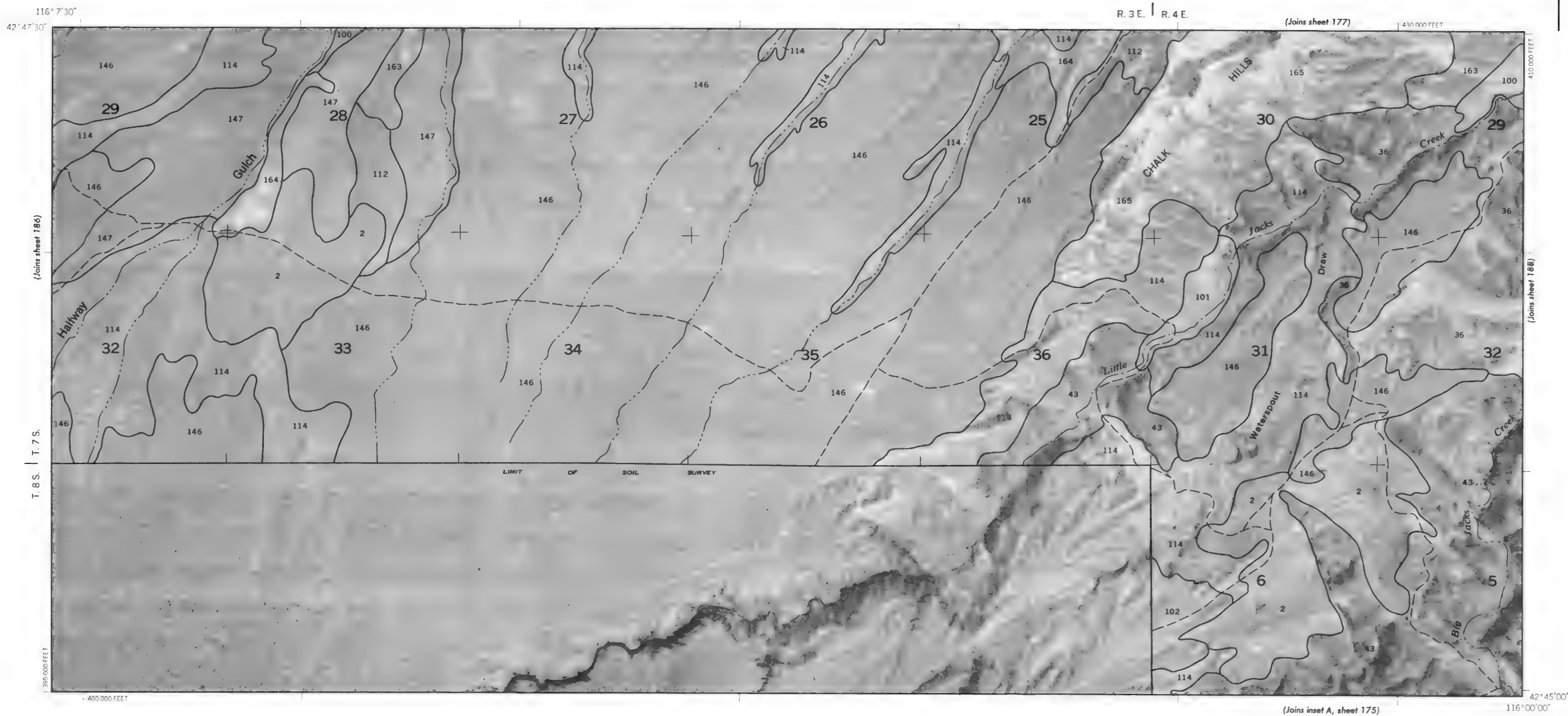




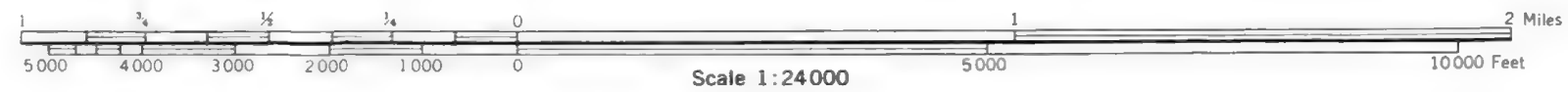
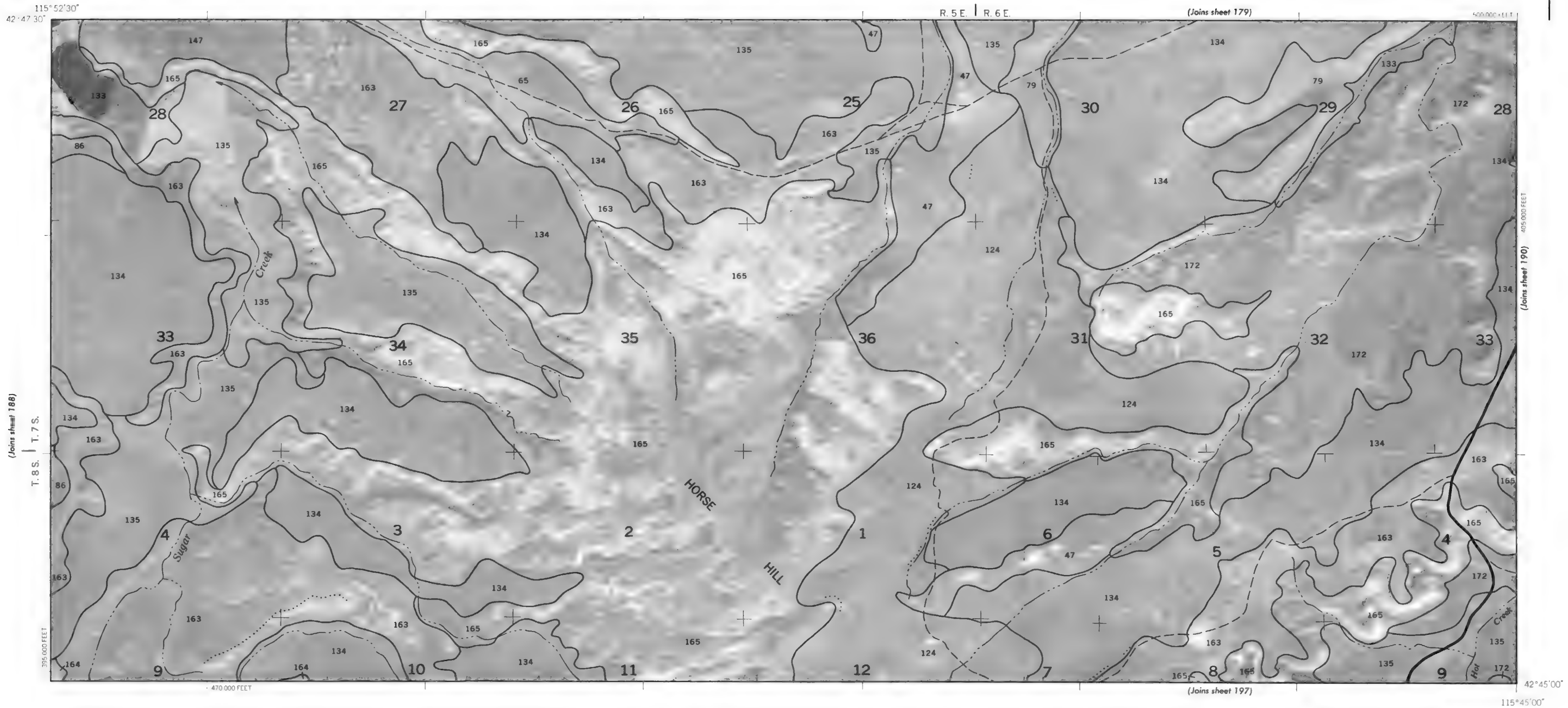










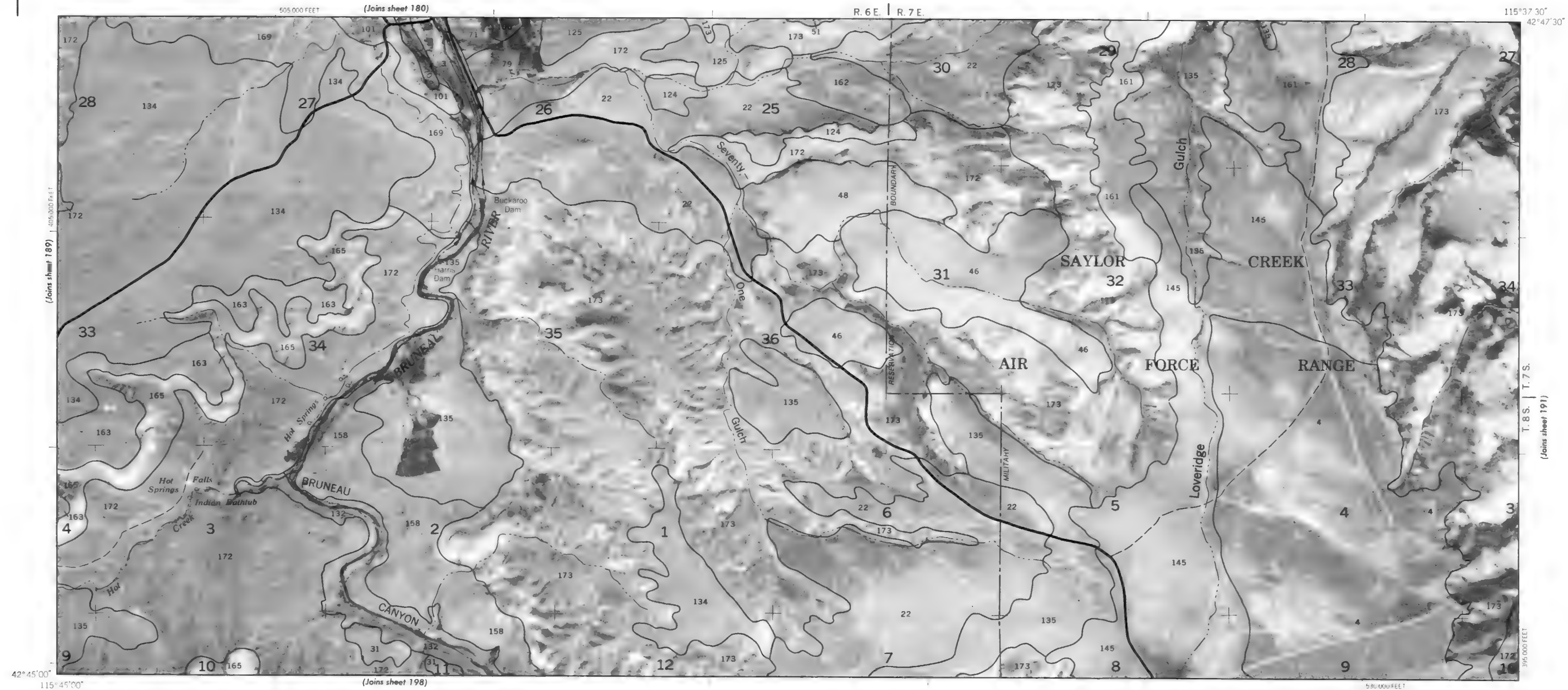


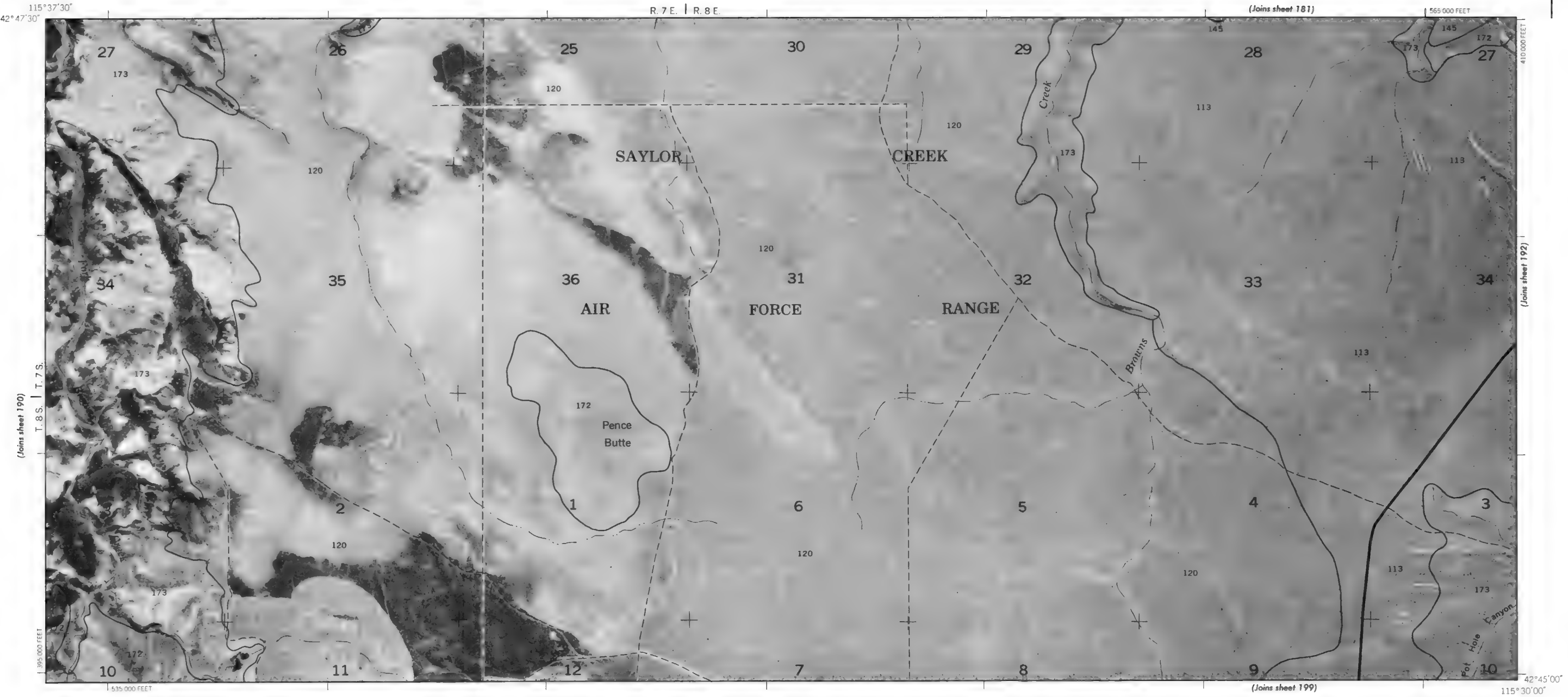


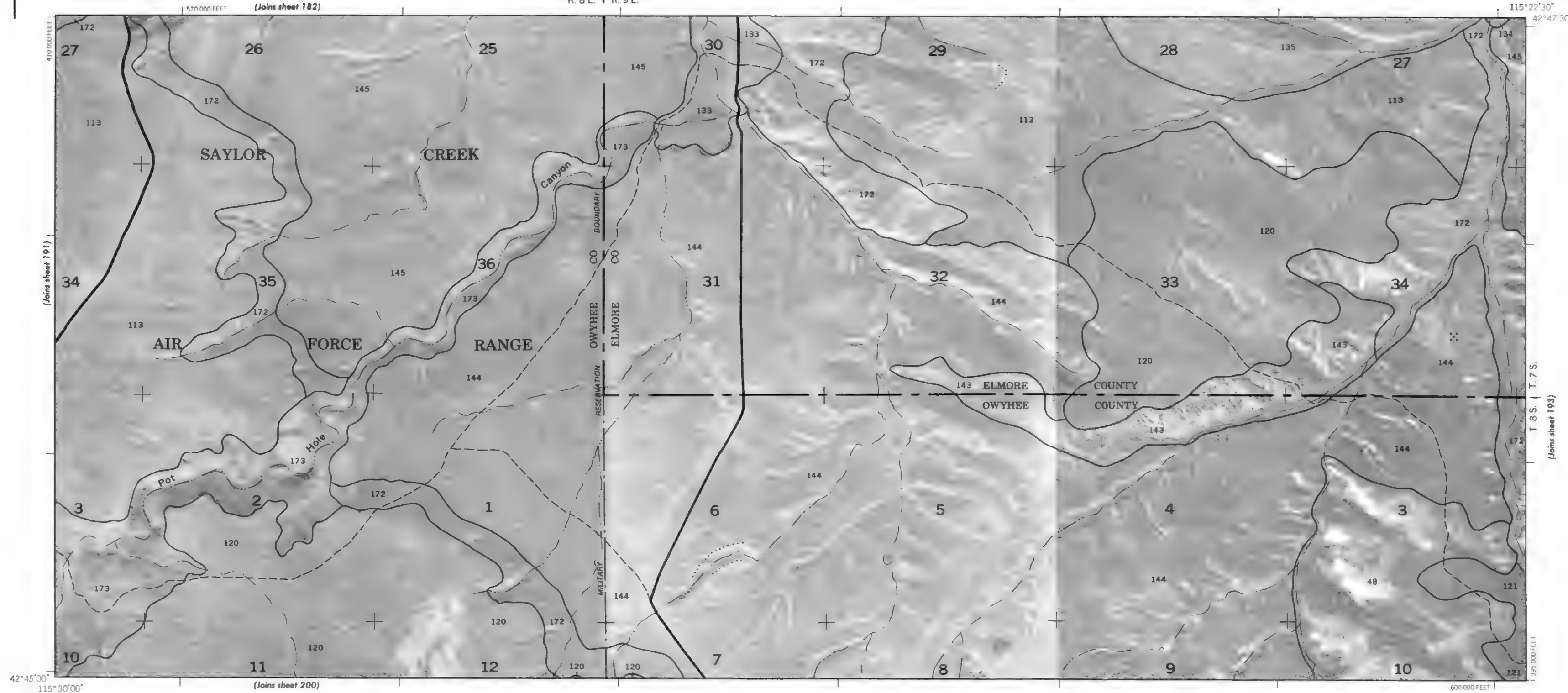




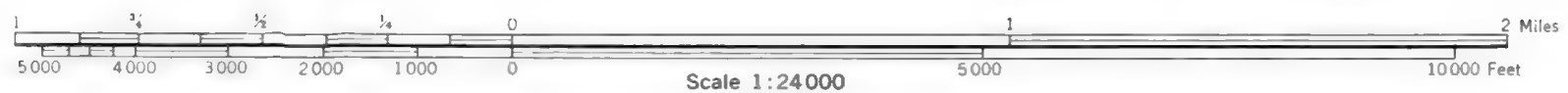
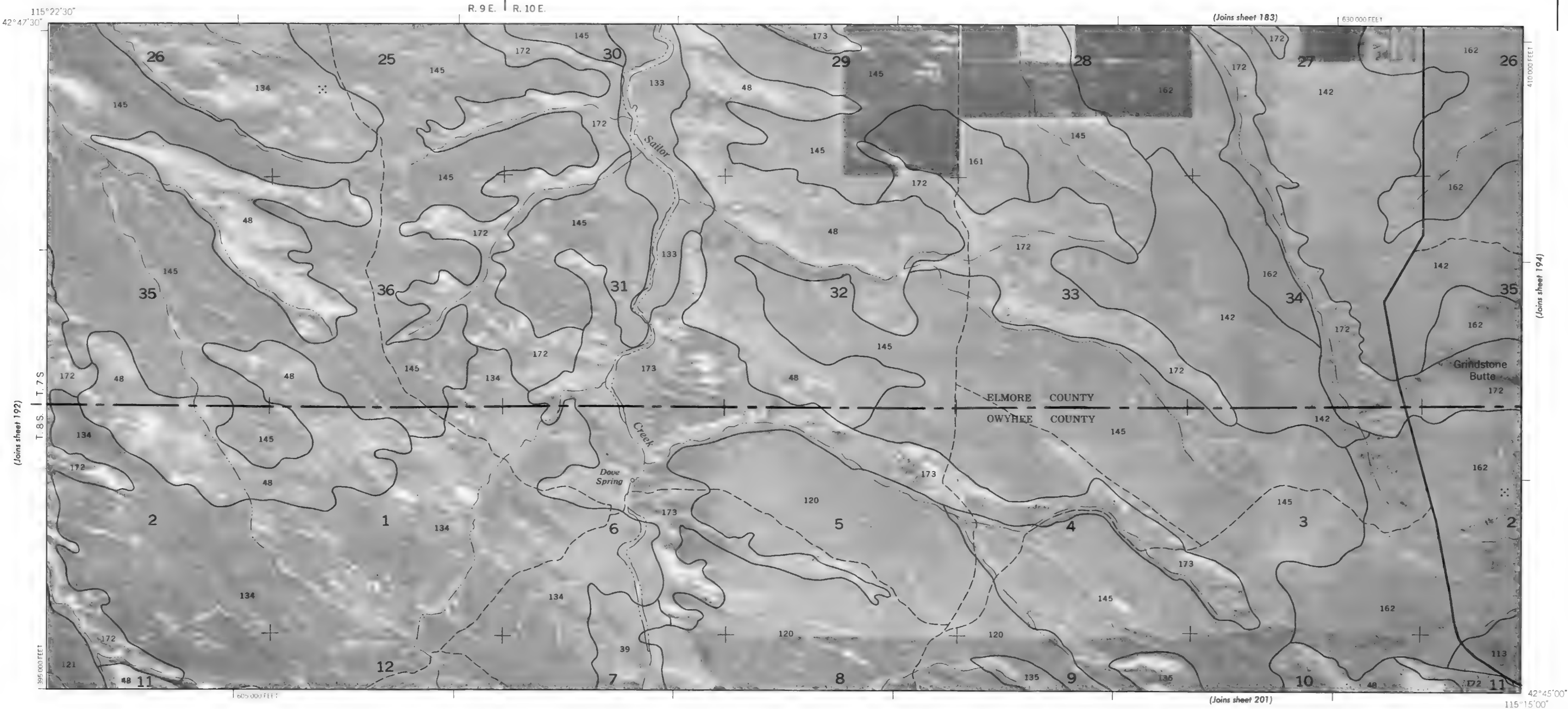
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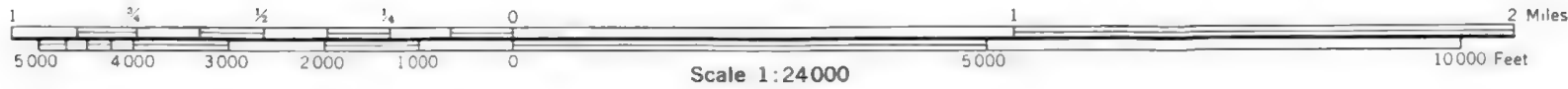
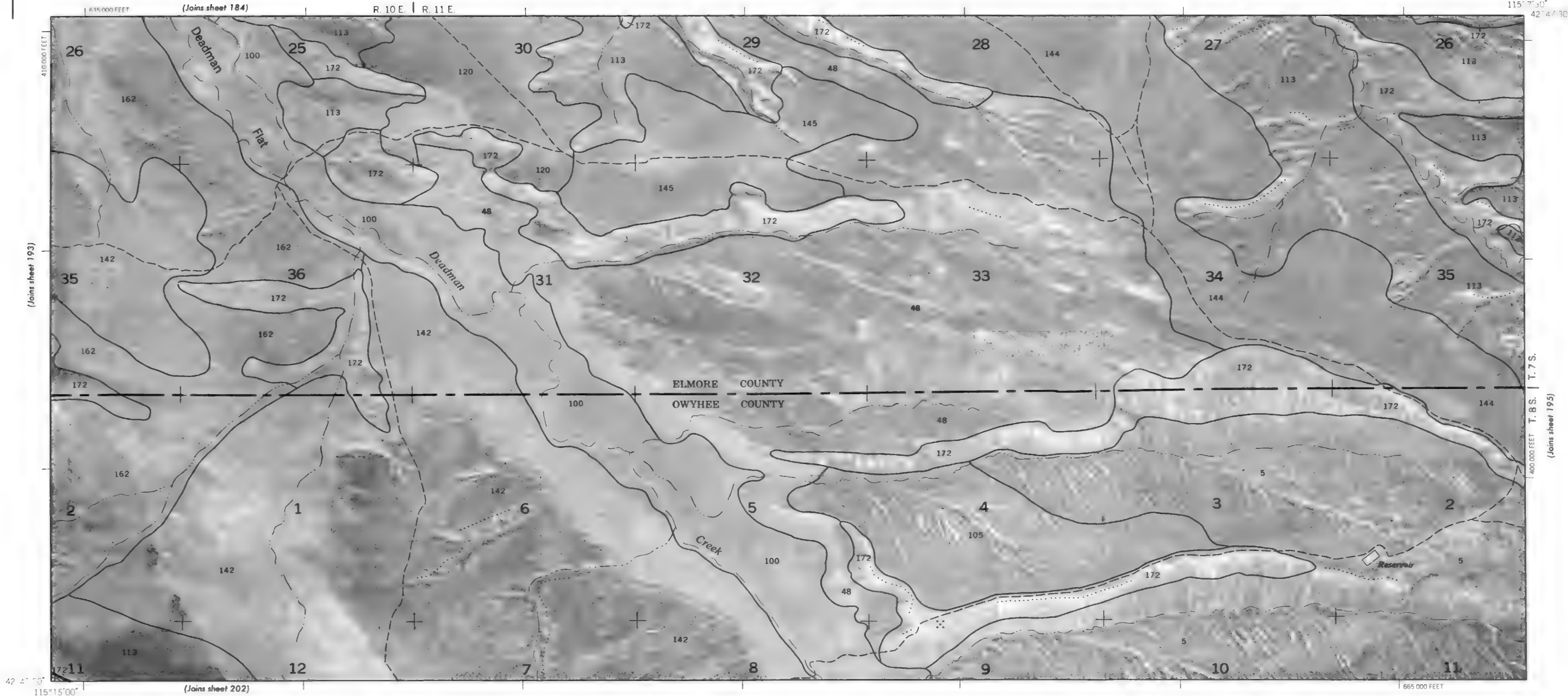


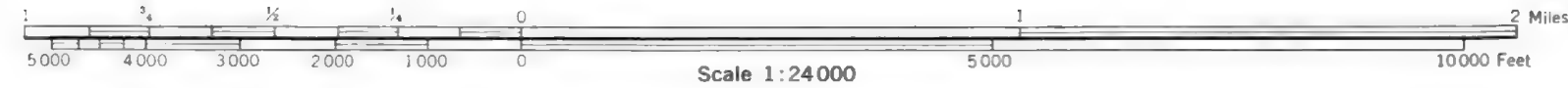
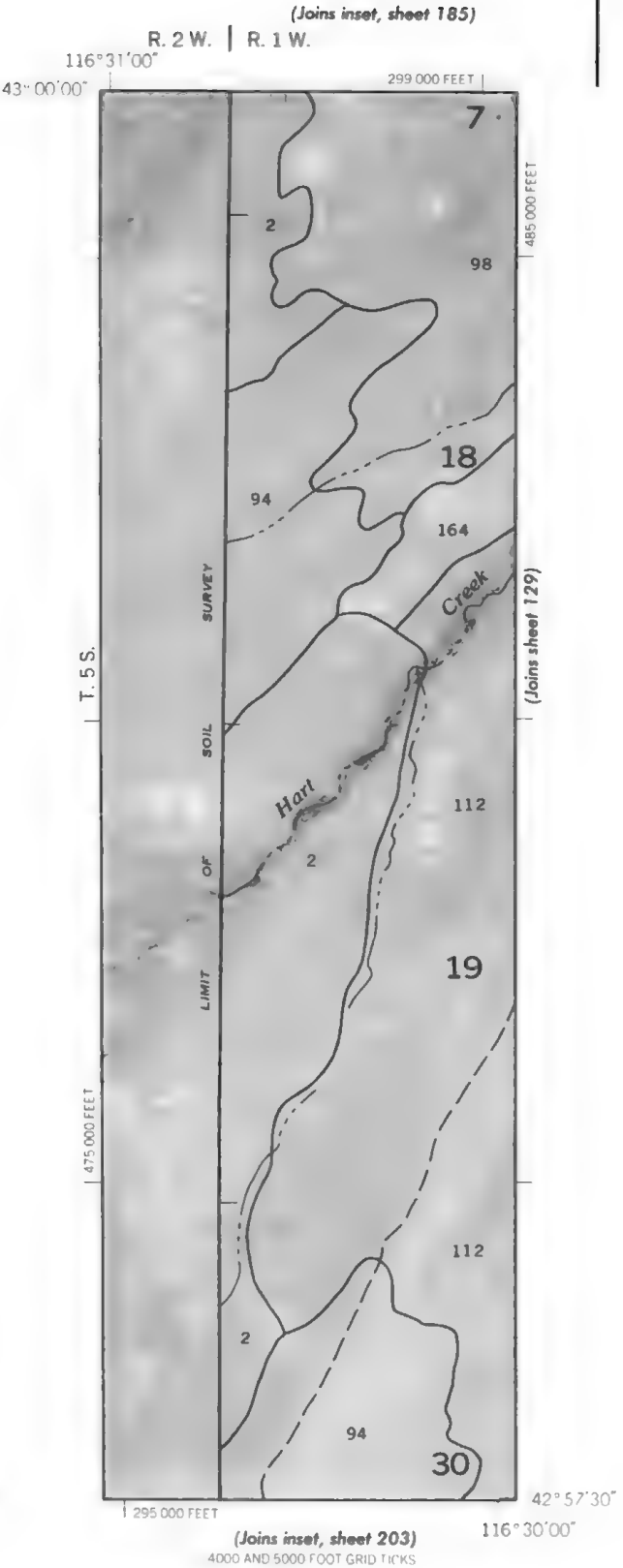
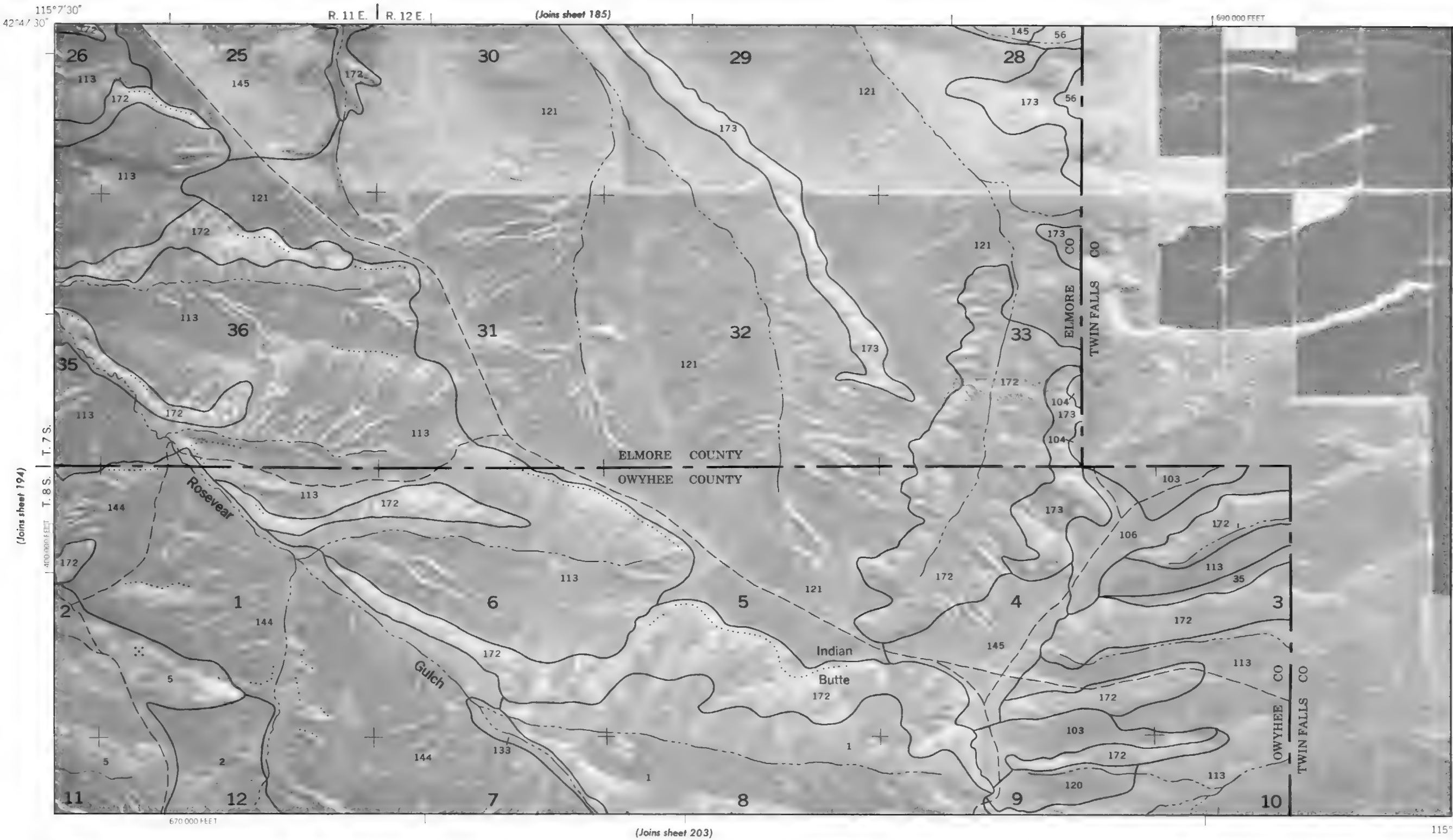




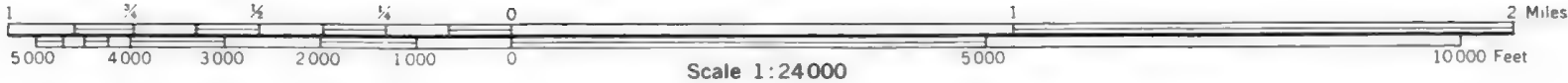
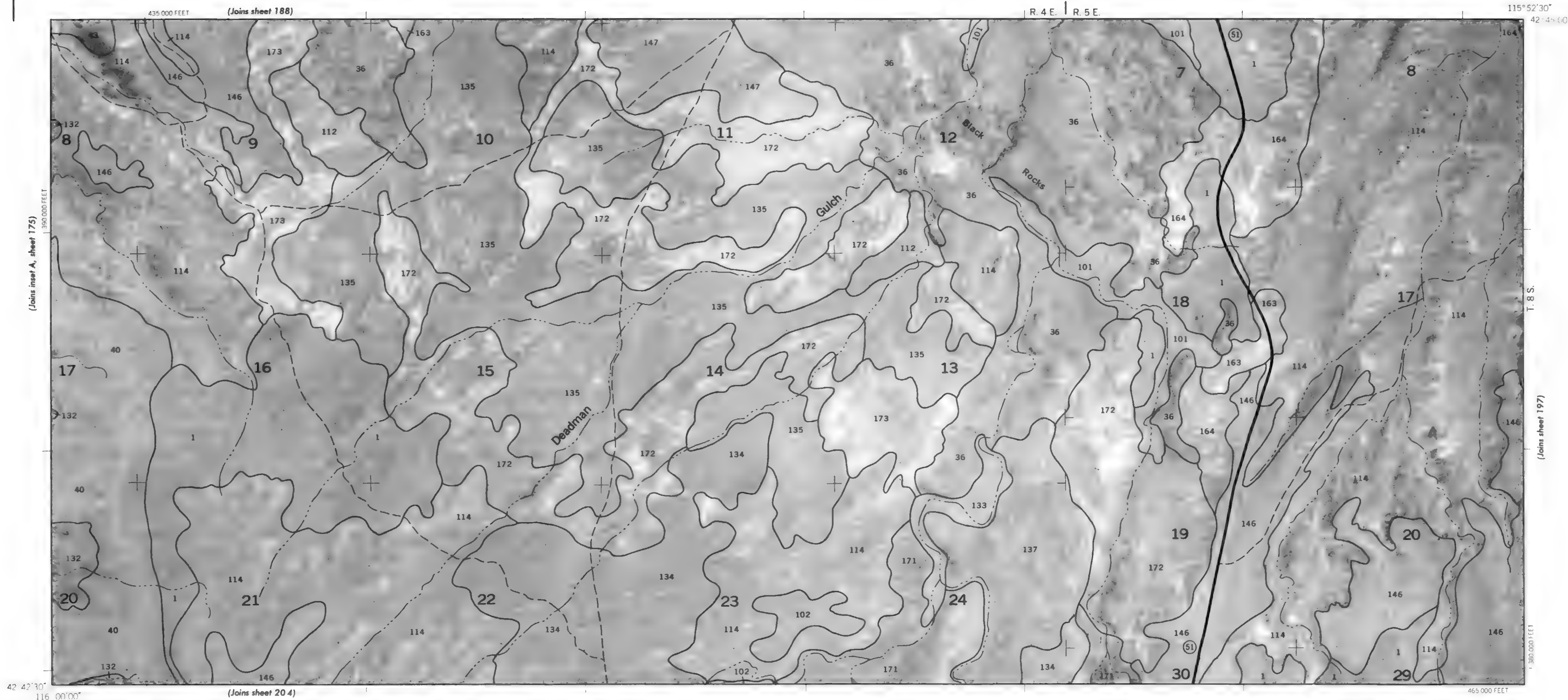




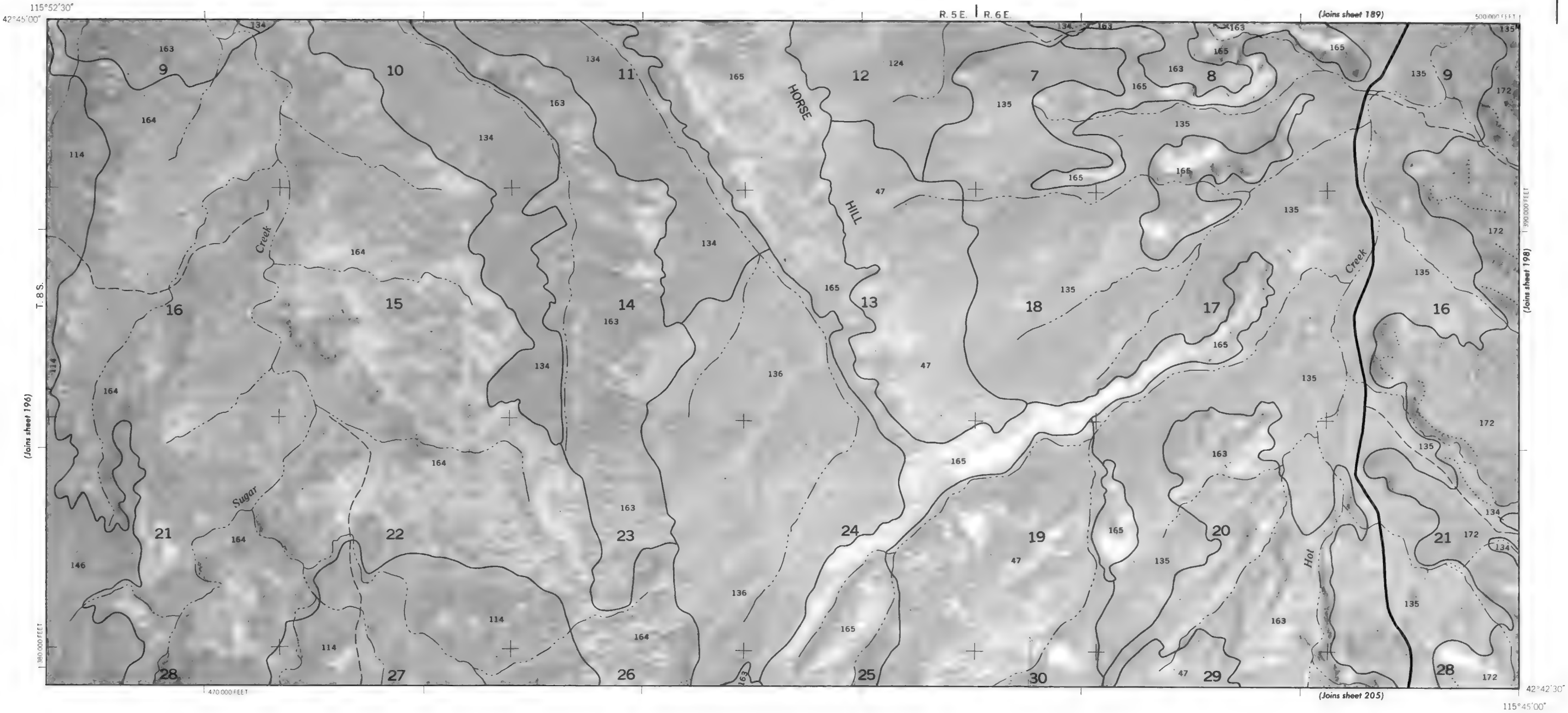




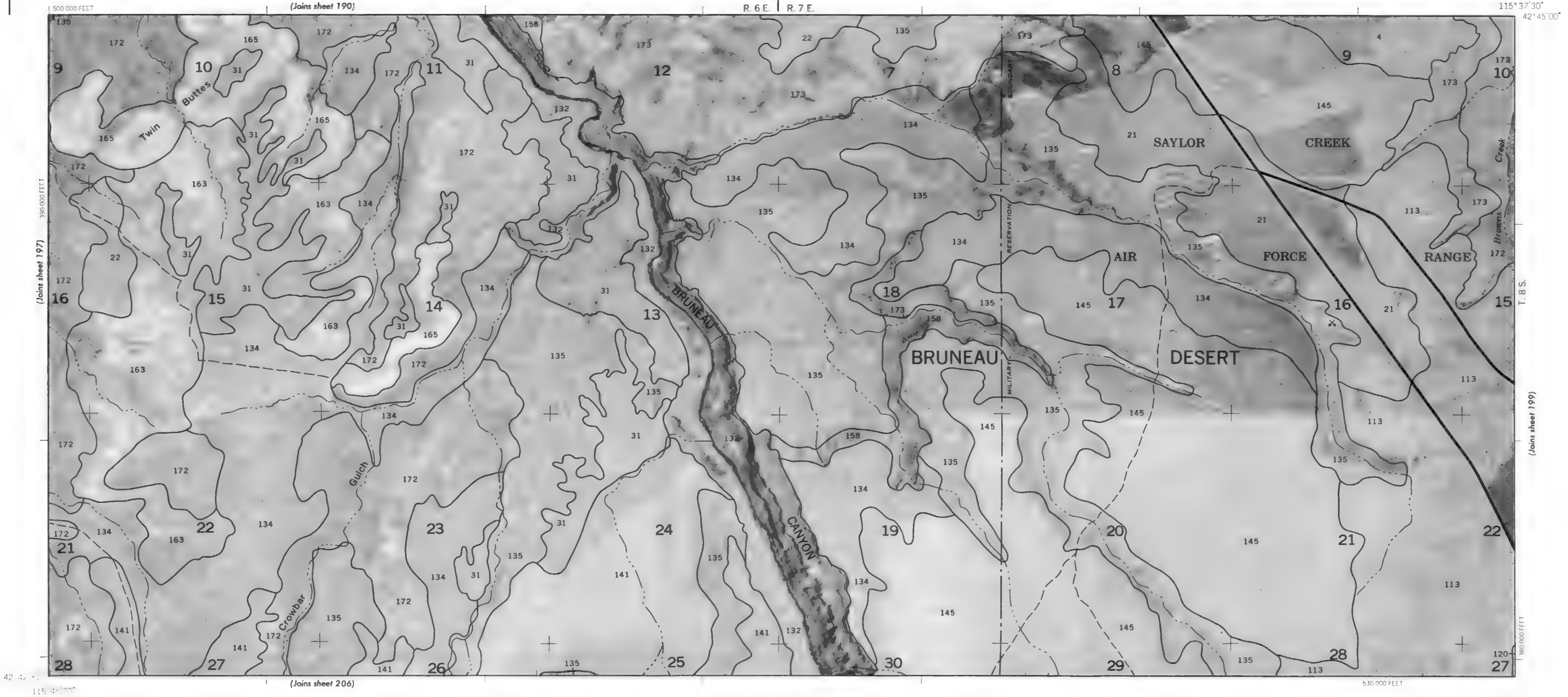


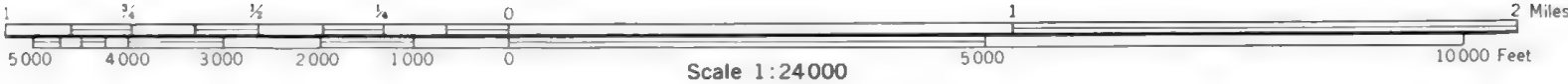
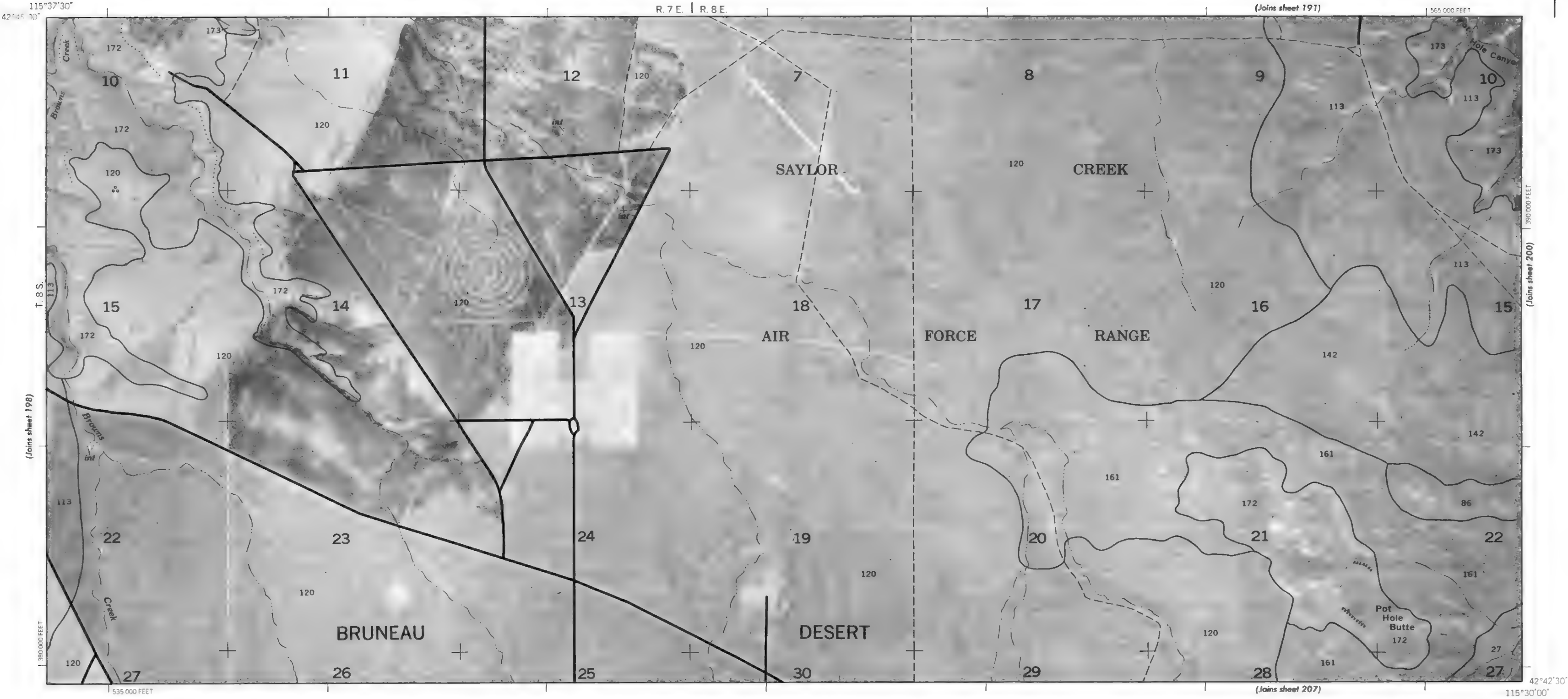






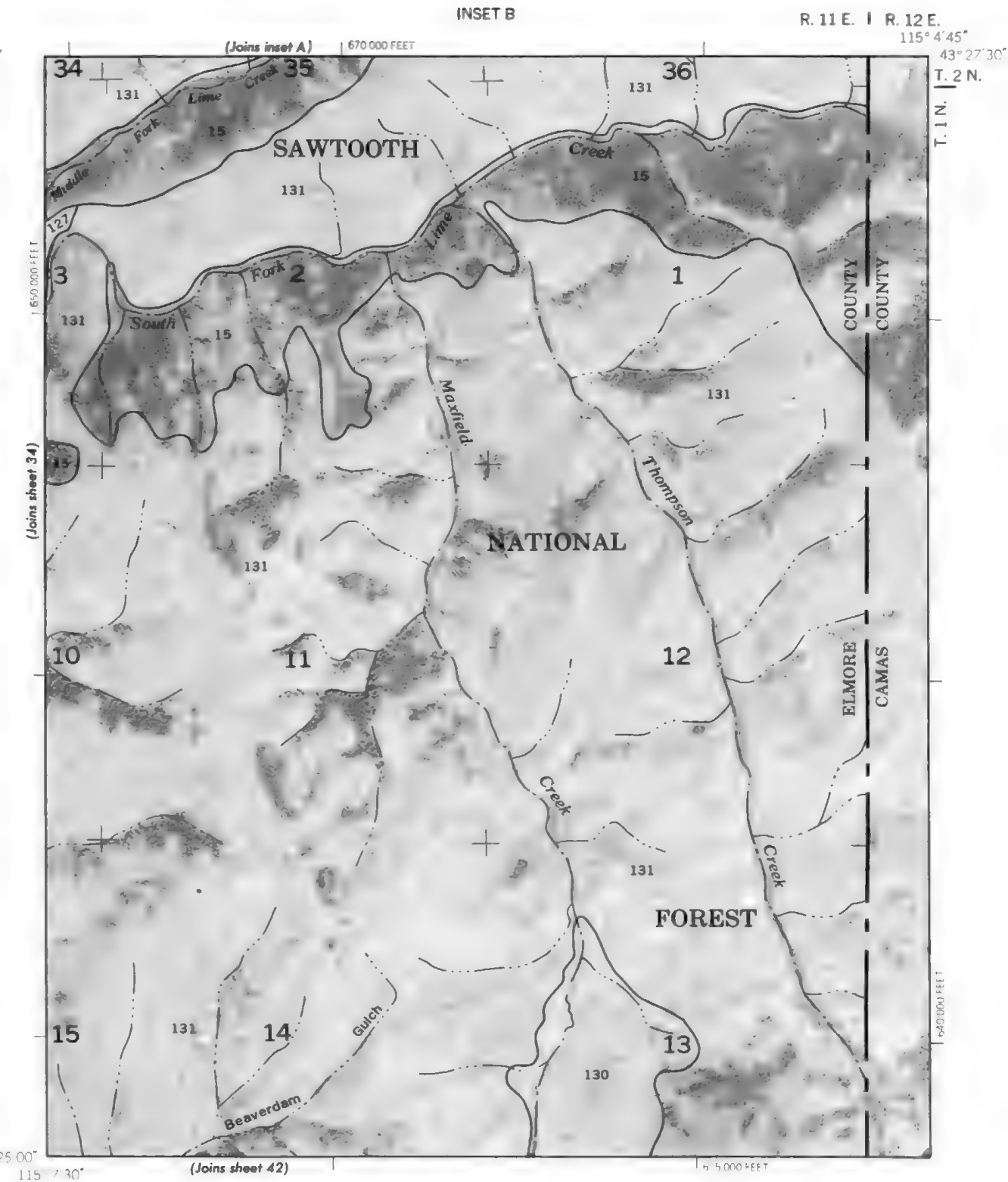
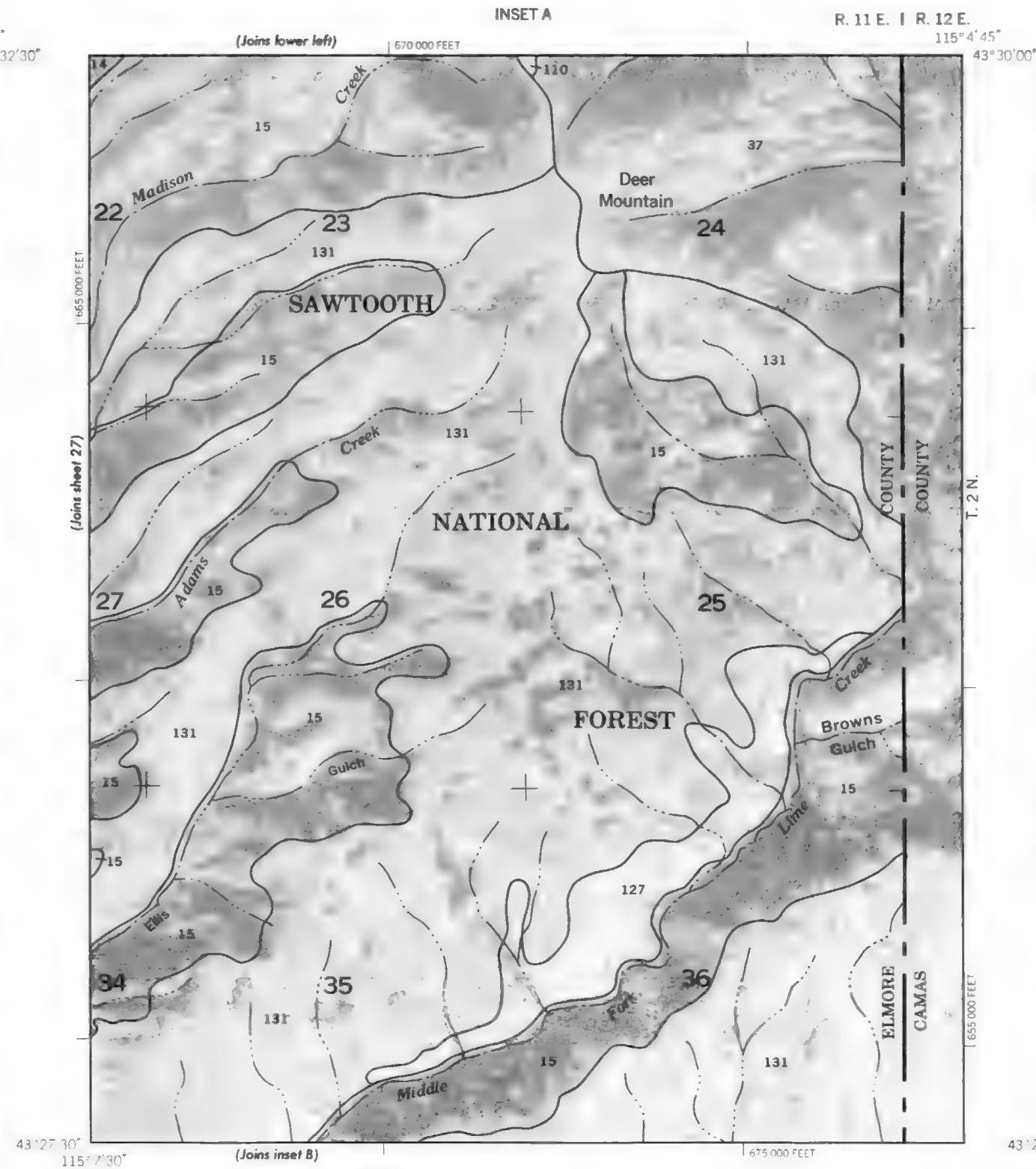
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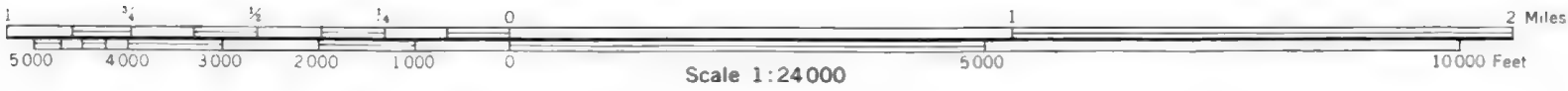




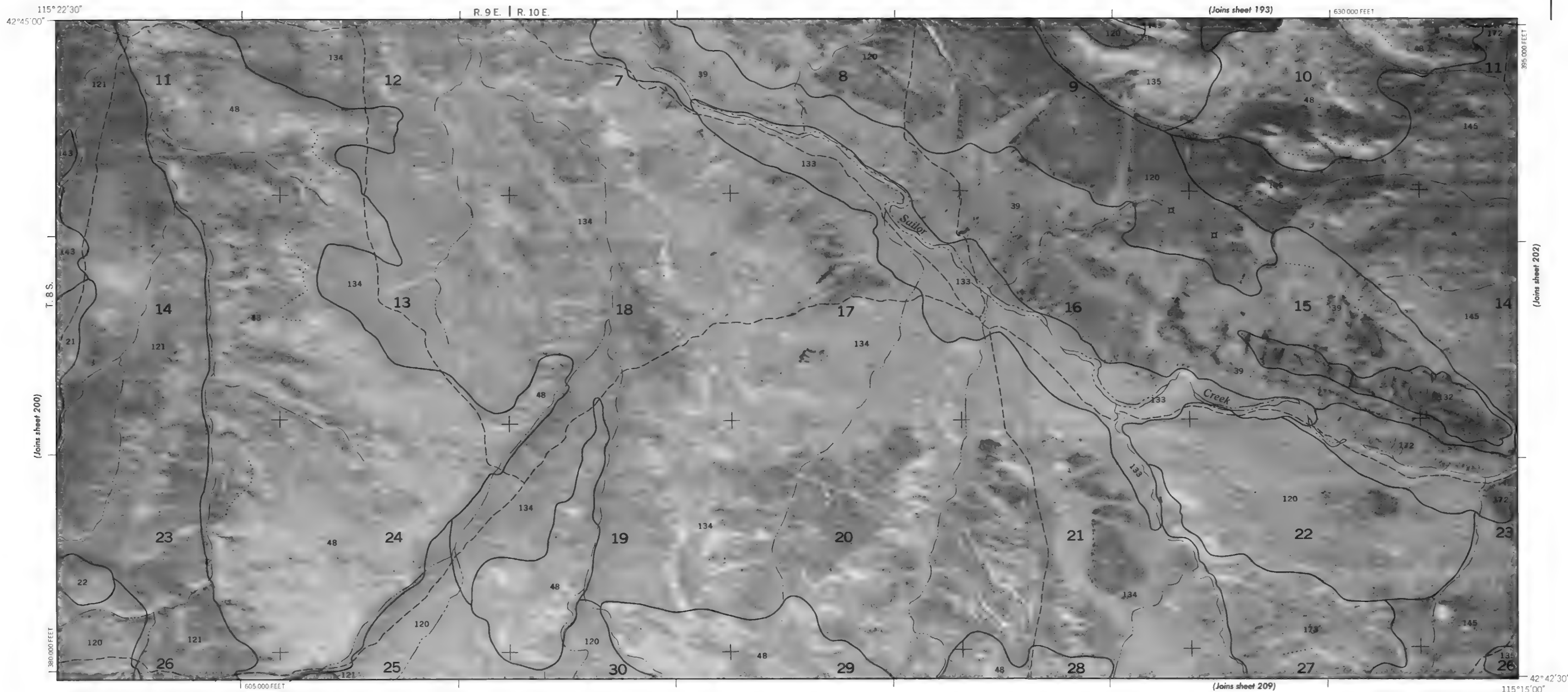




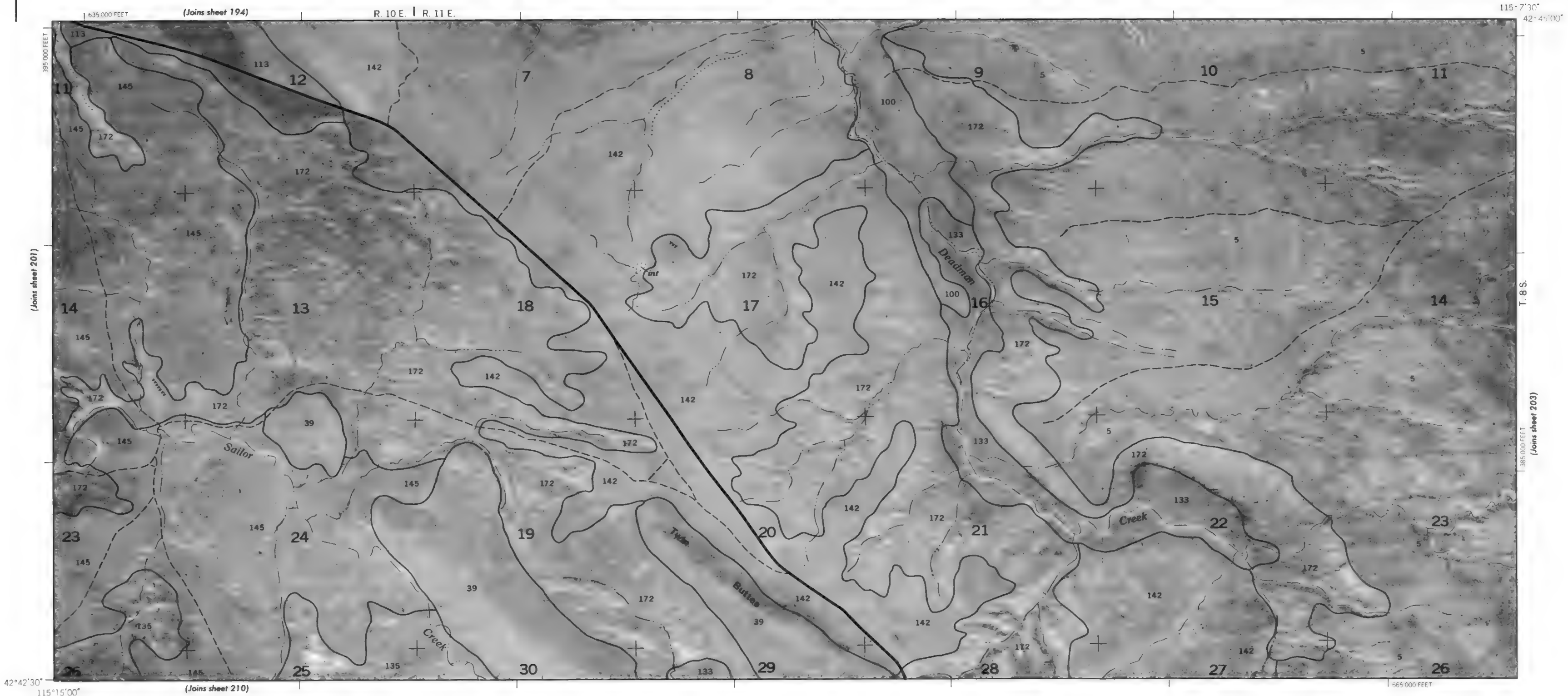
R. 8 E. | R. 9 E.

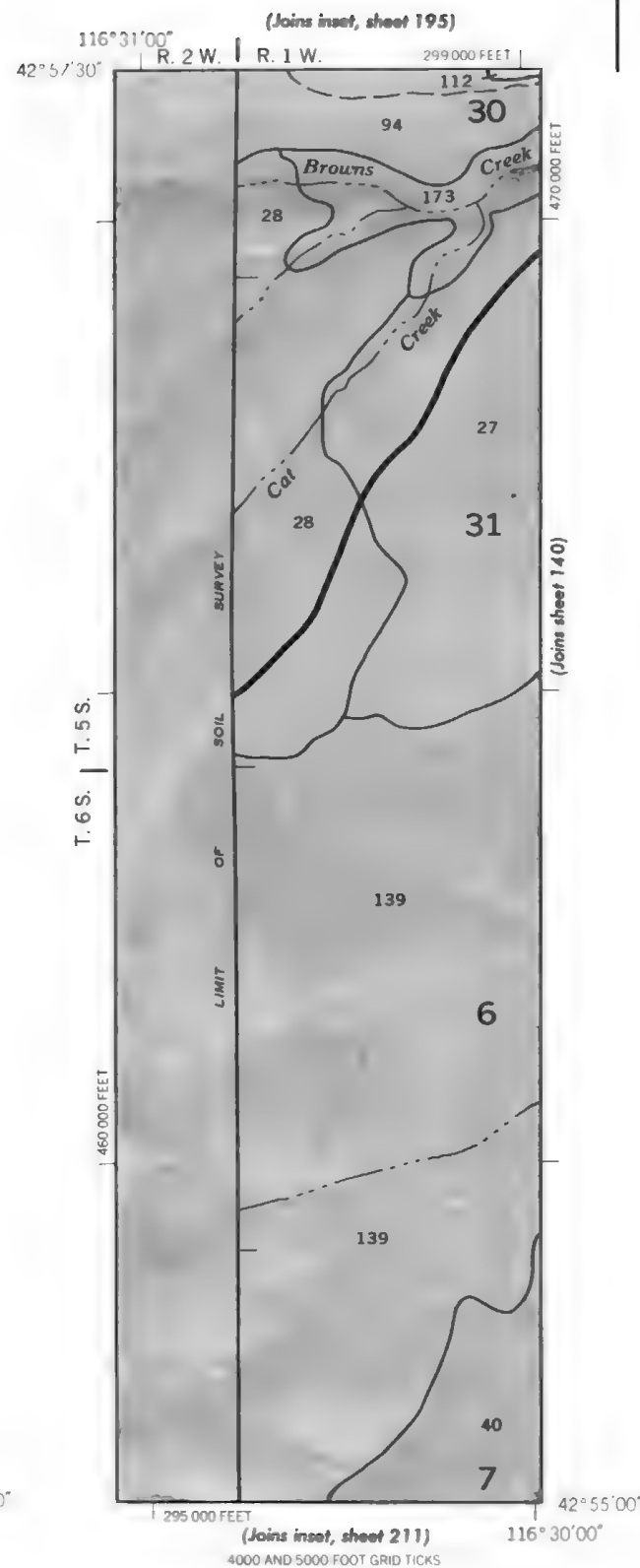


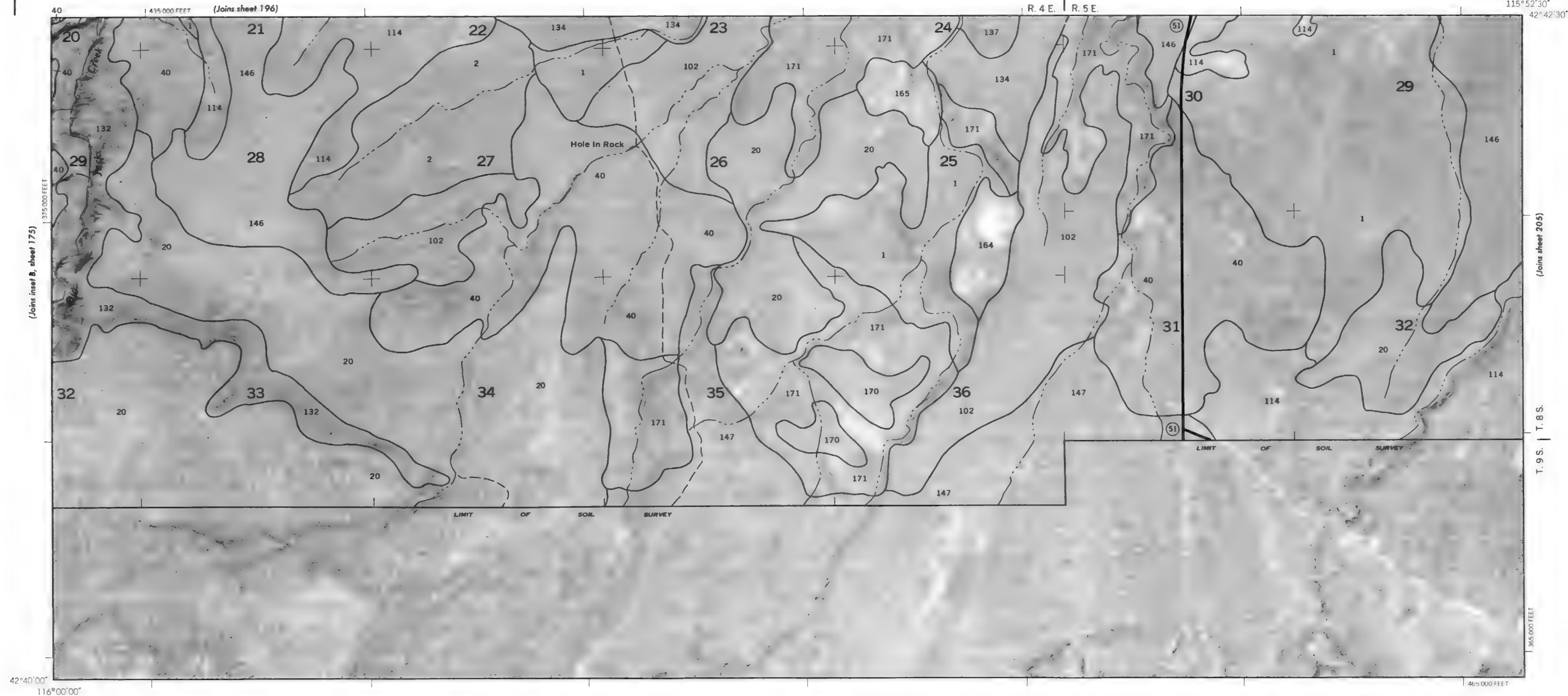




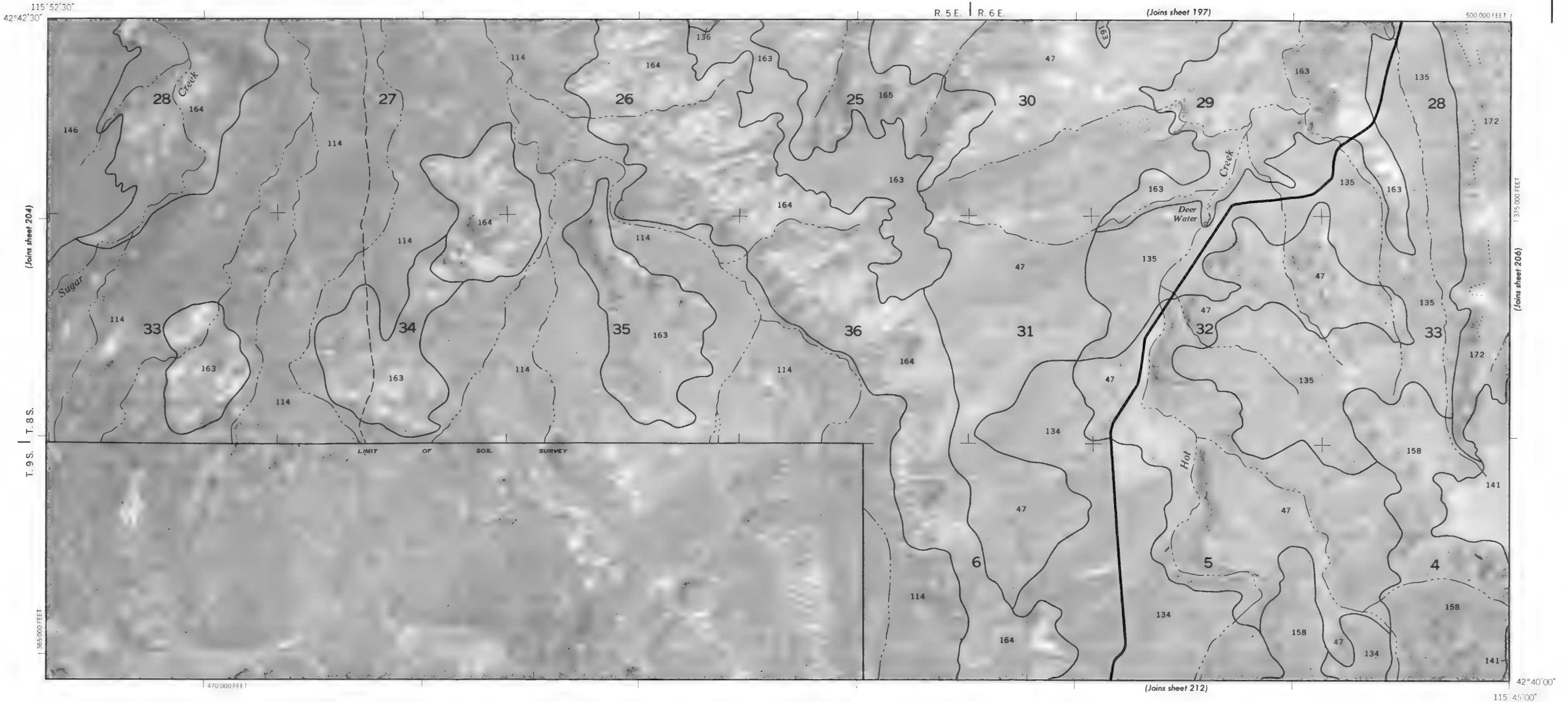


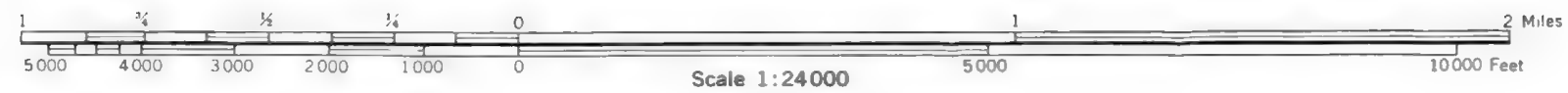
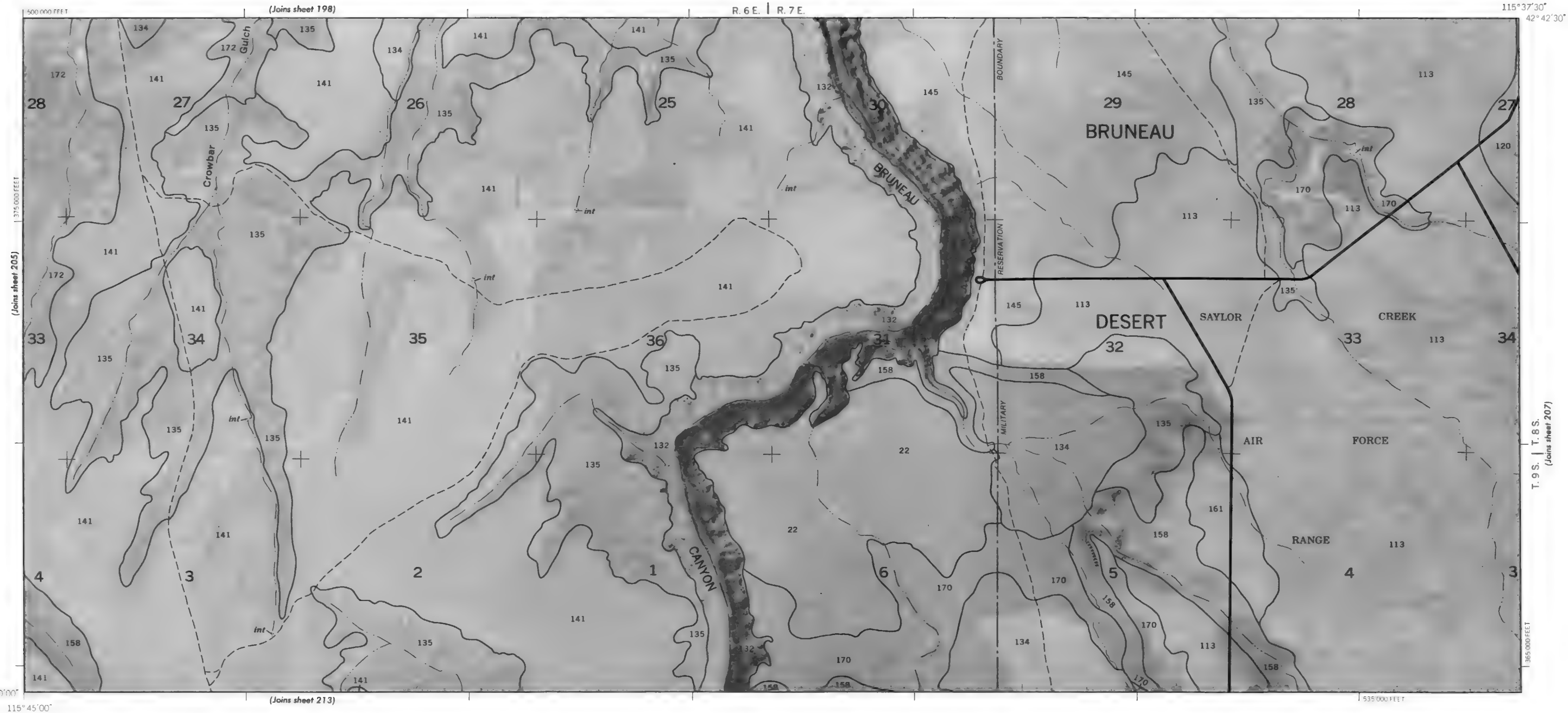


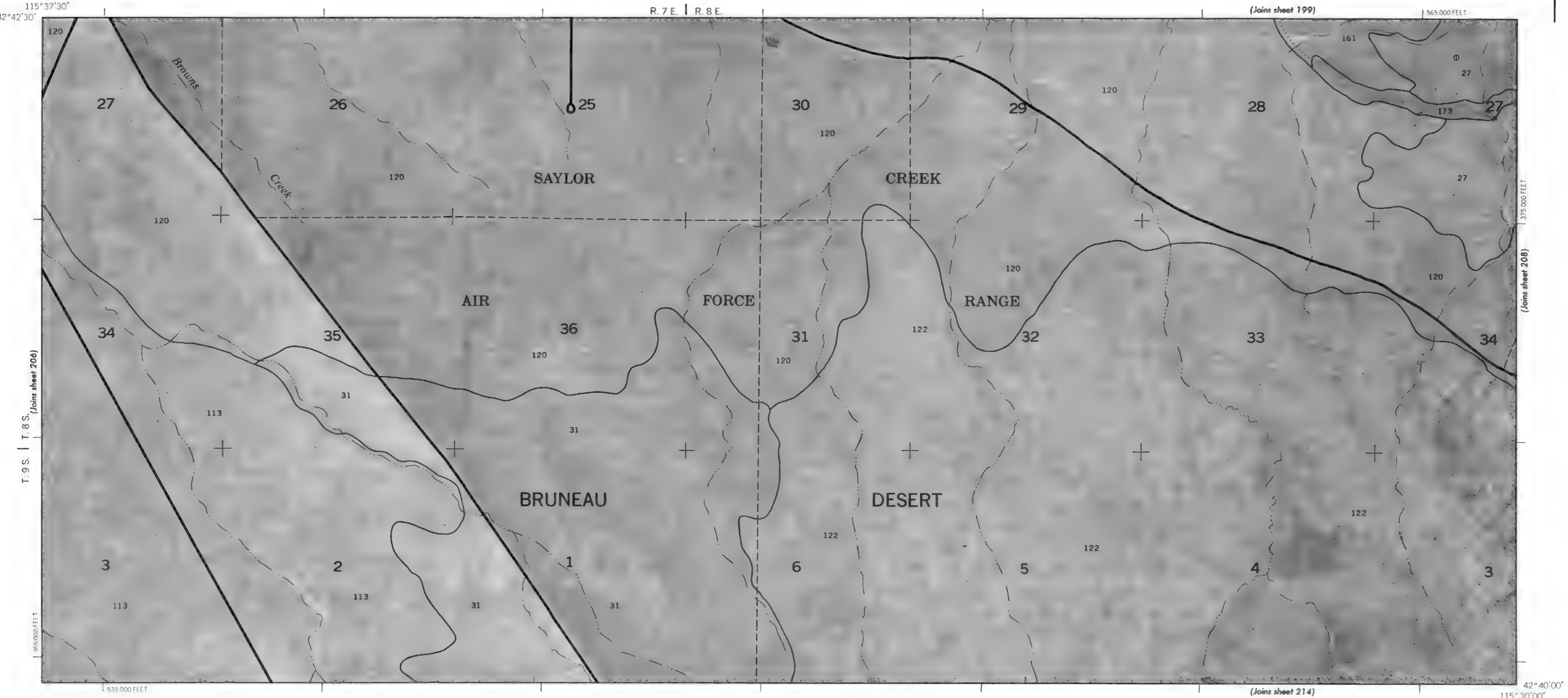


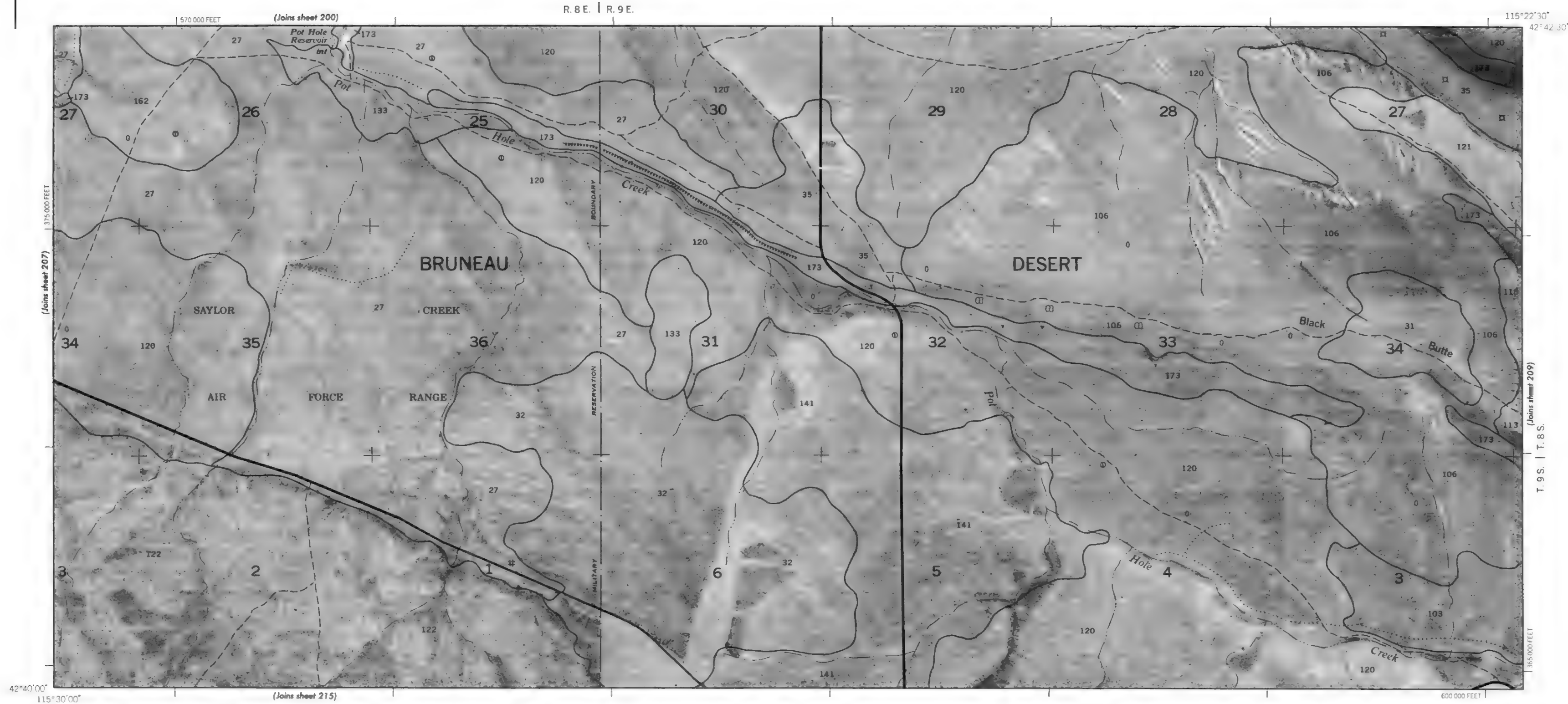




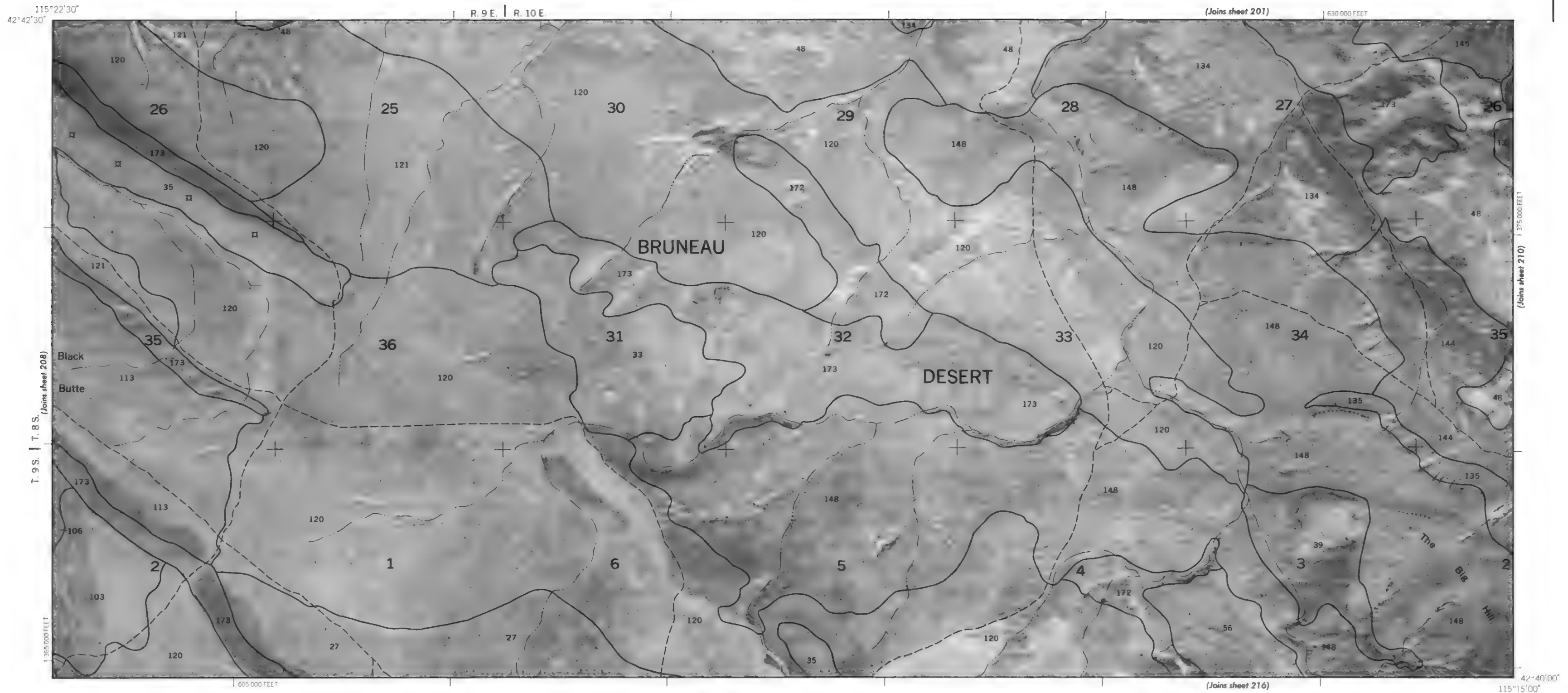


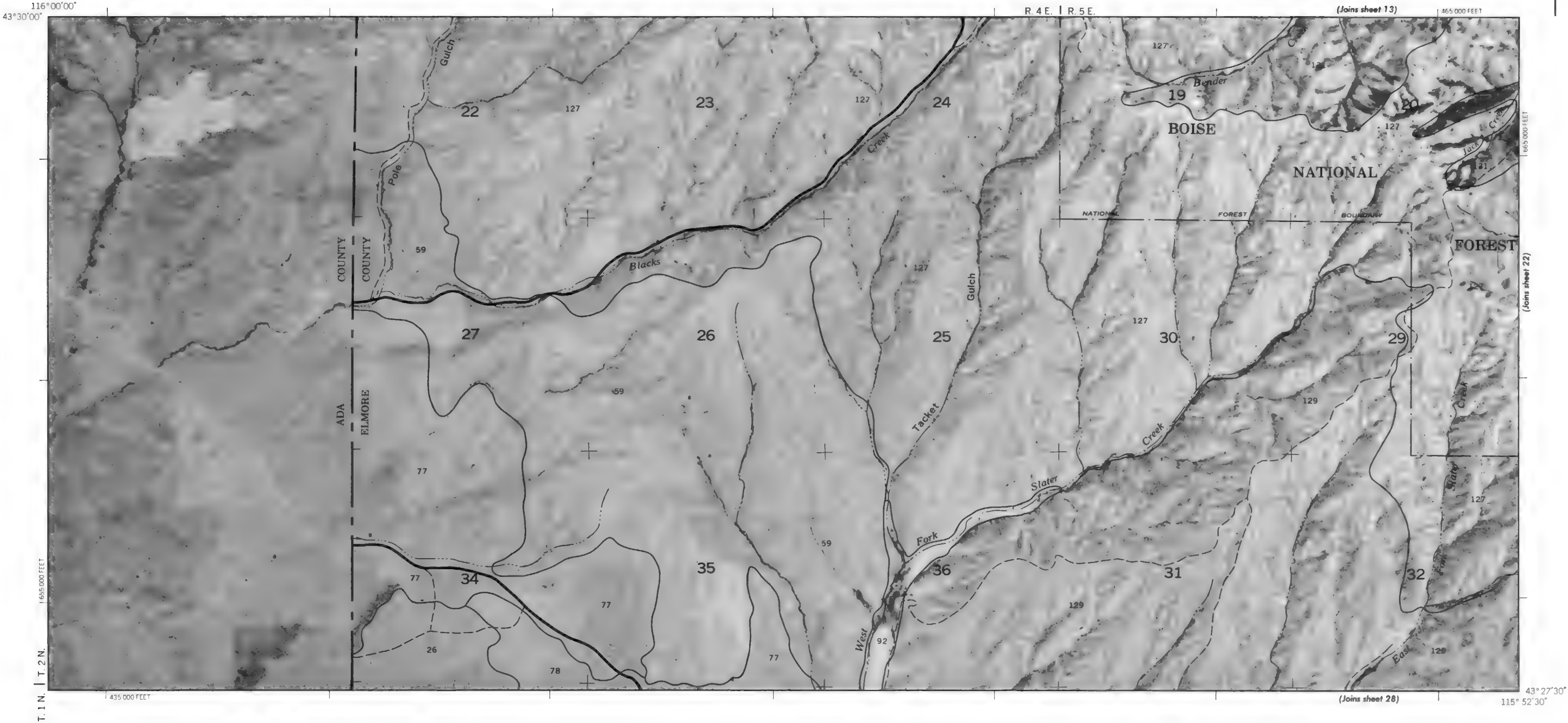


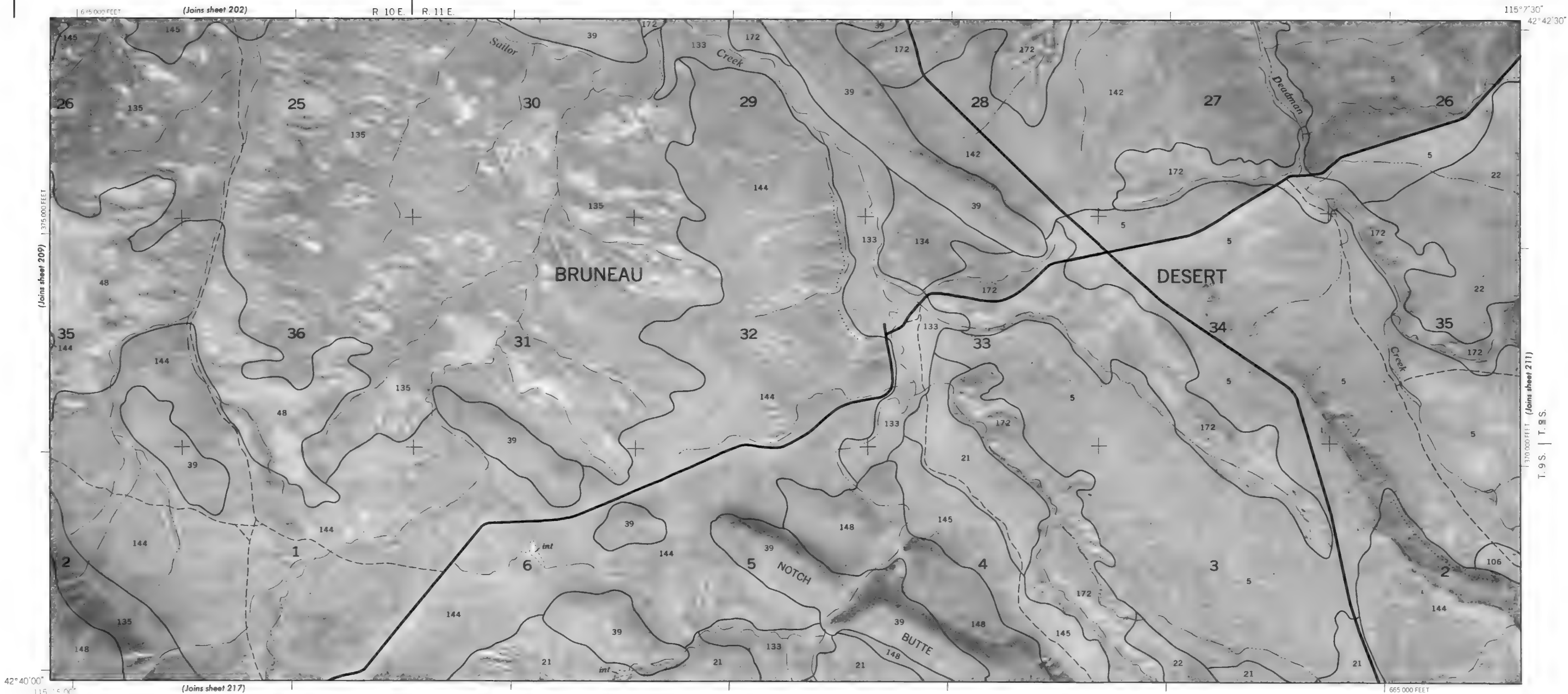




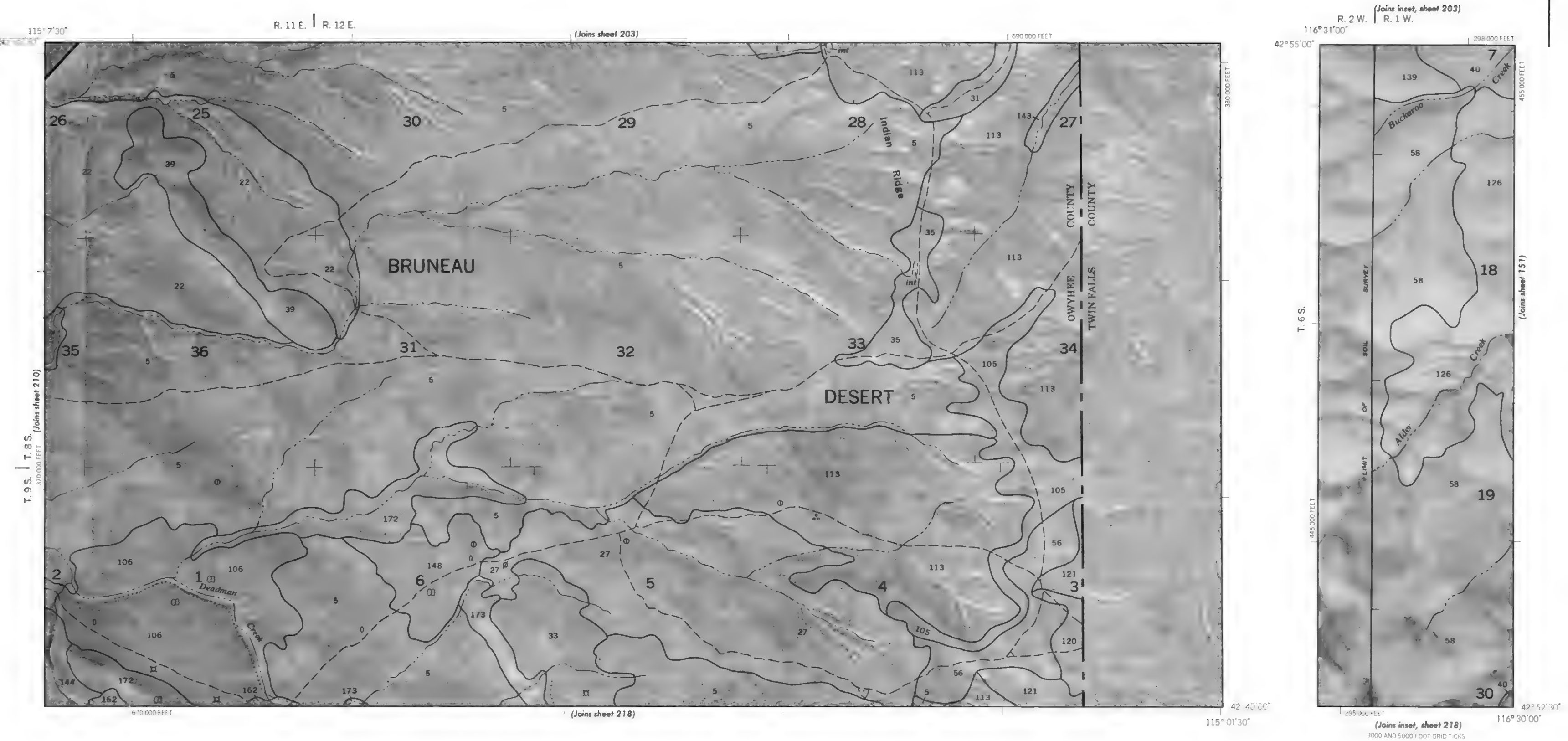


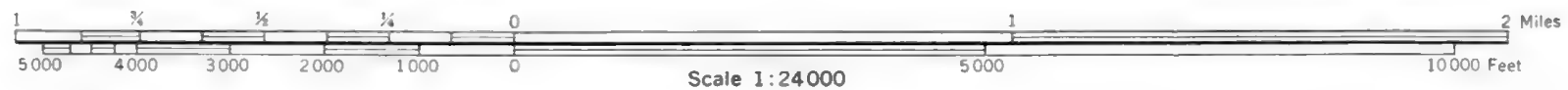
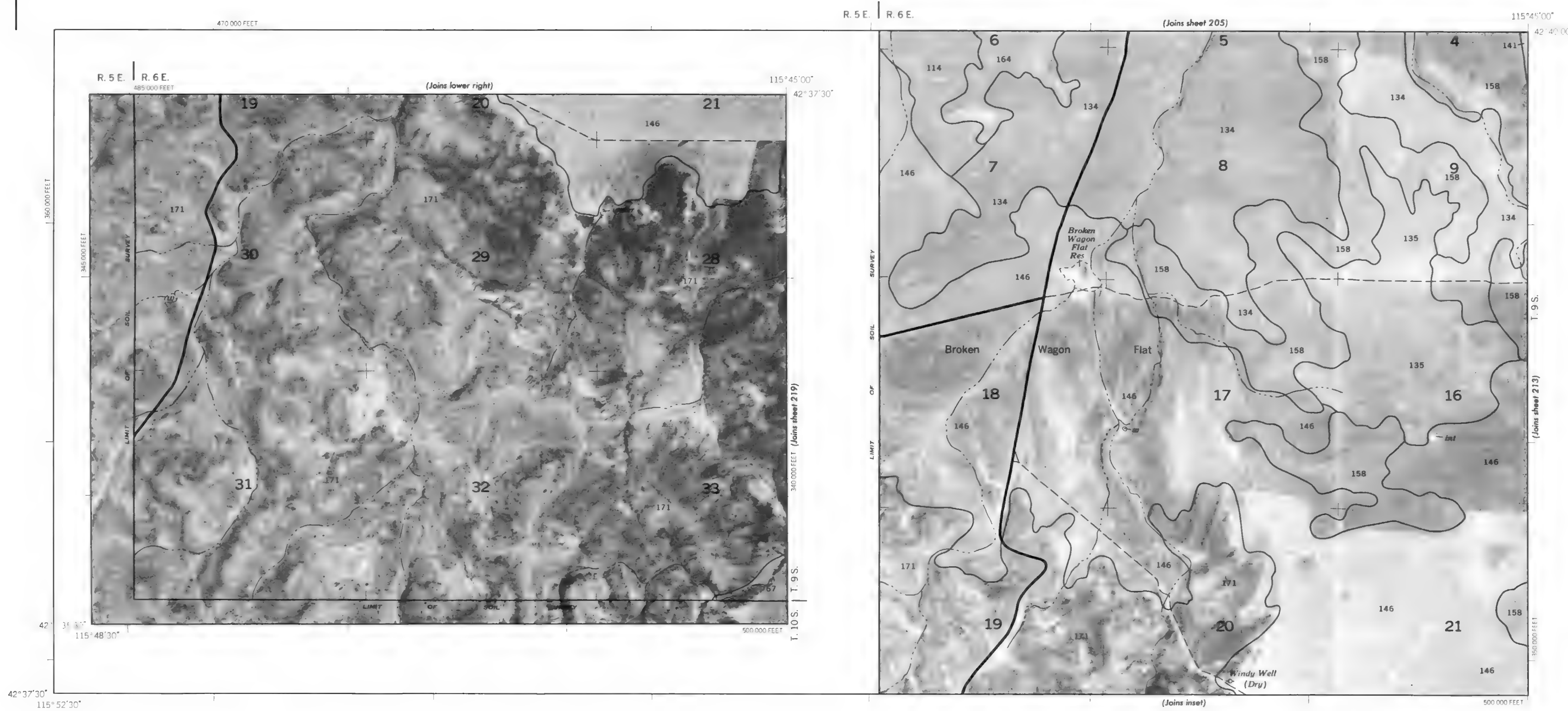


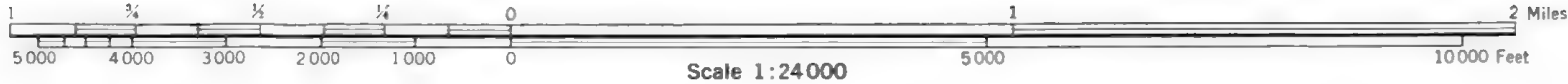
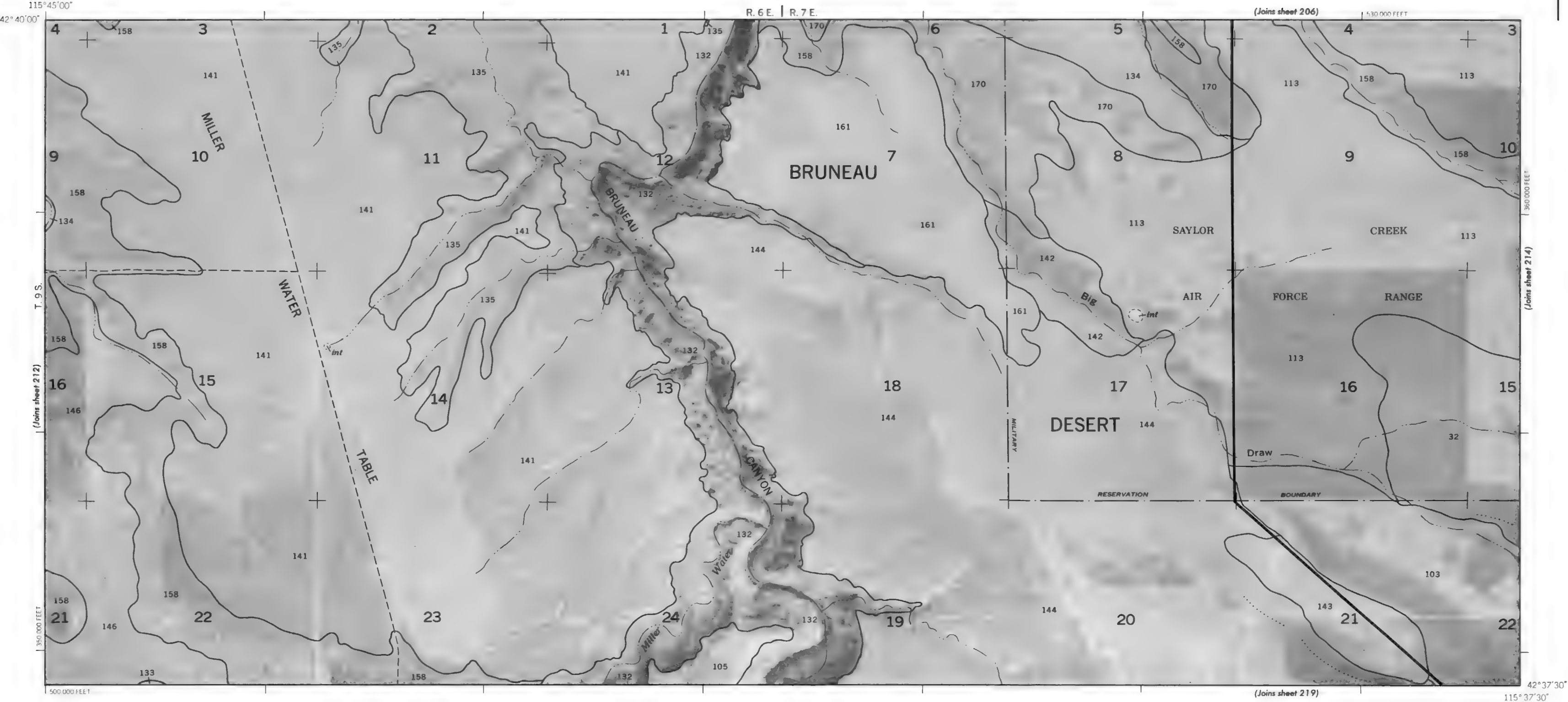


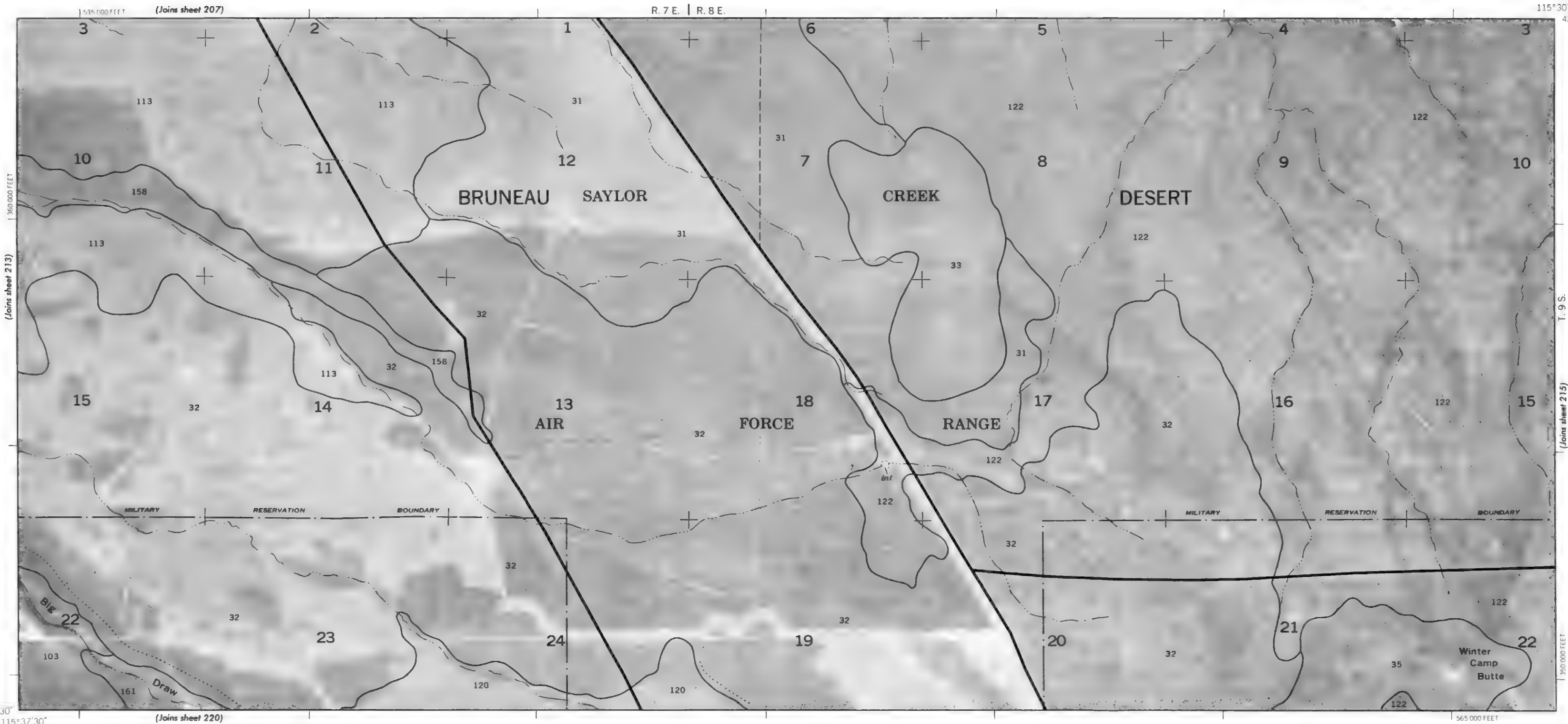




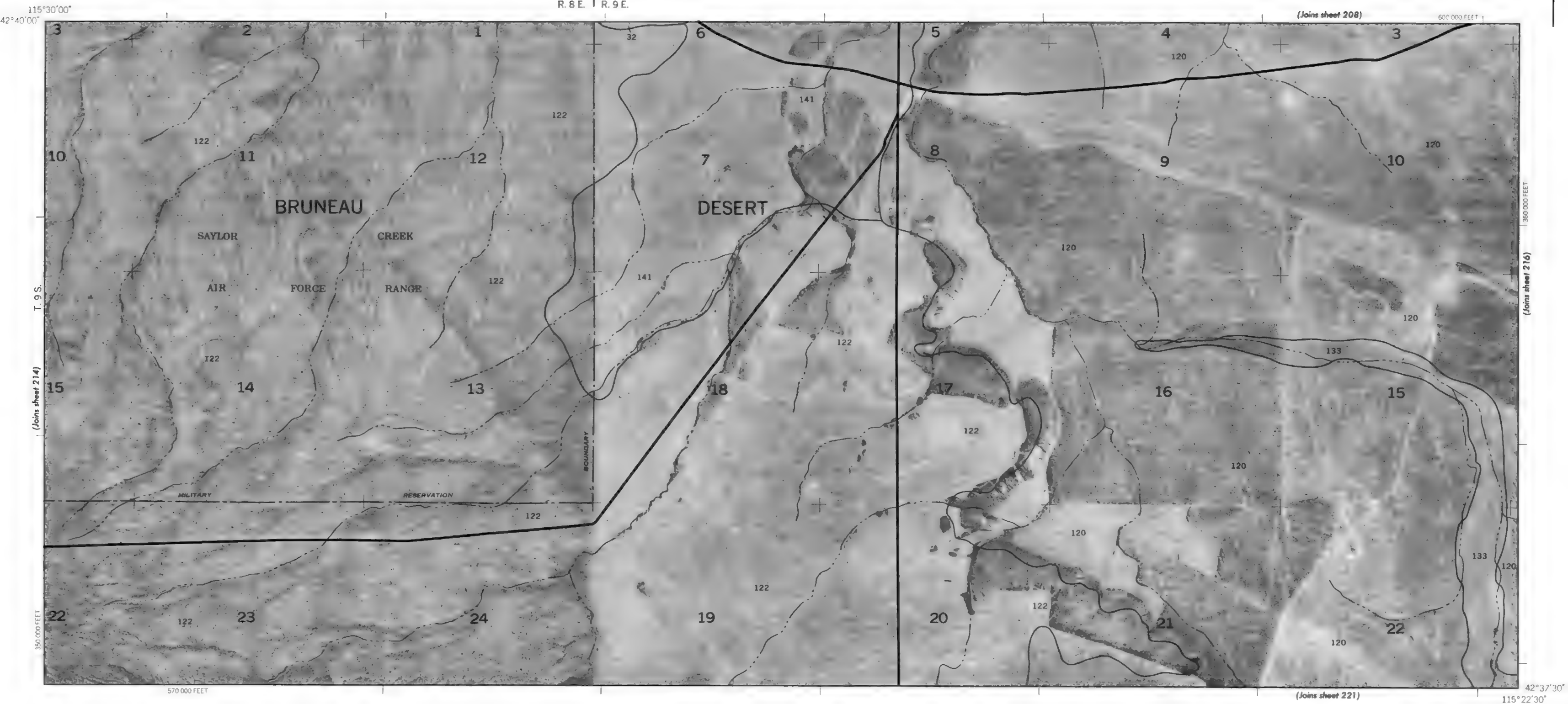


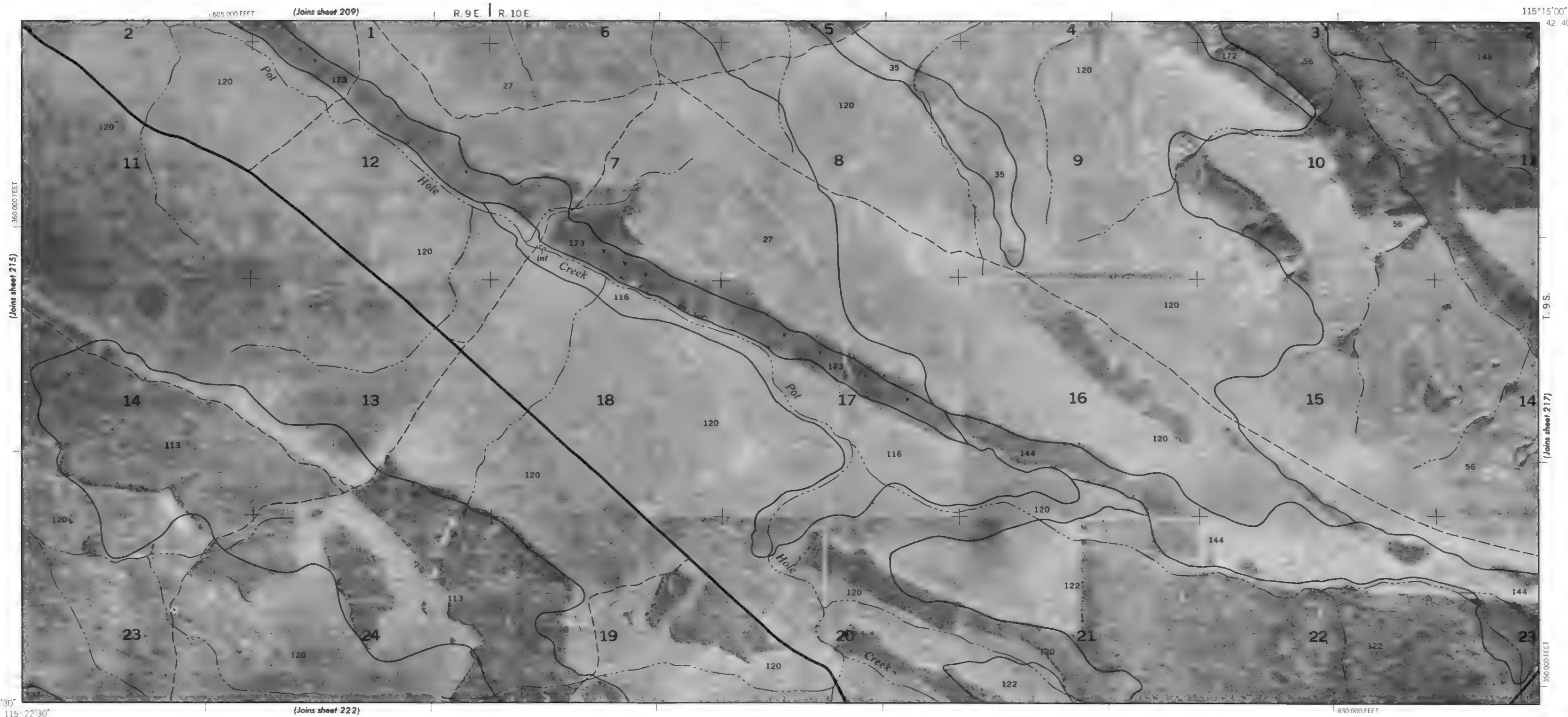


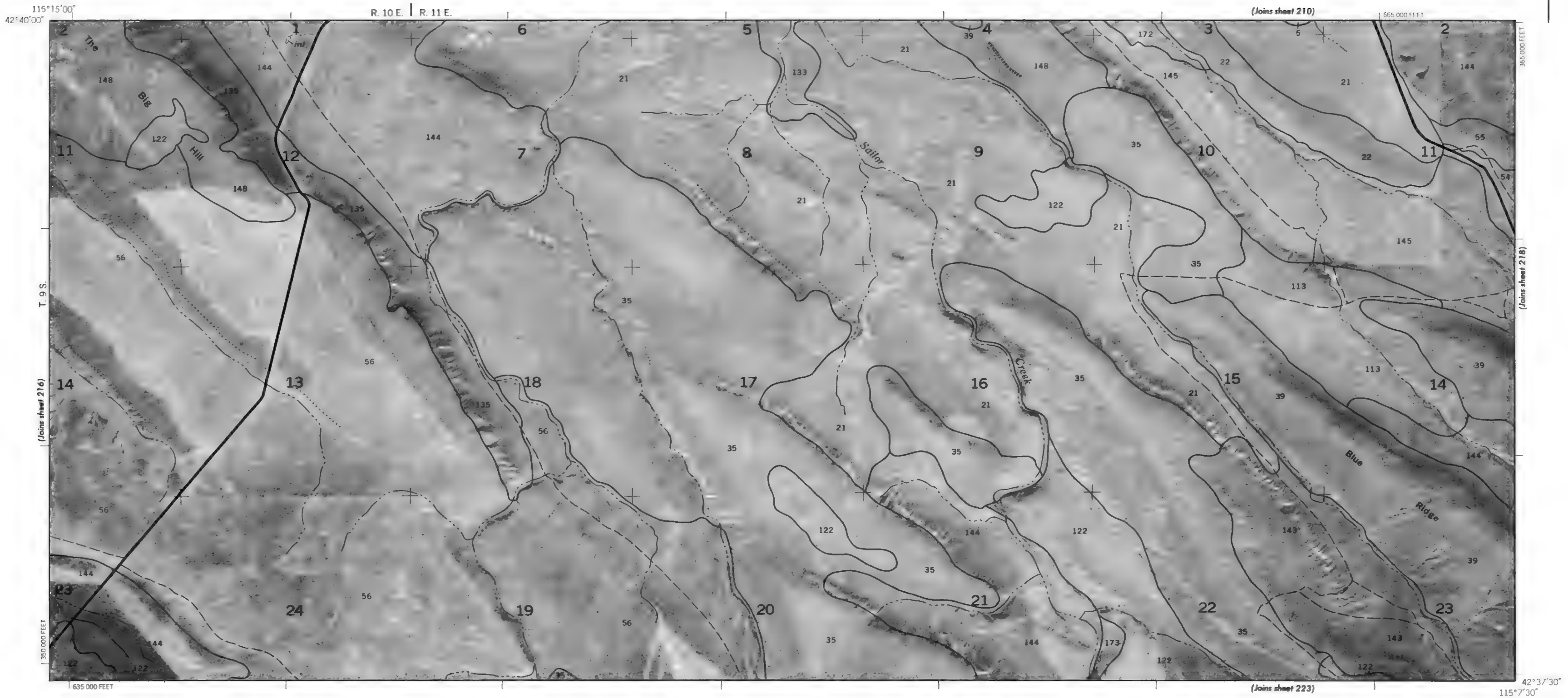




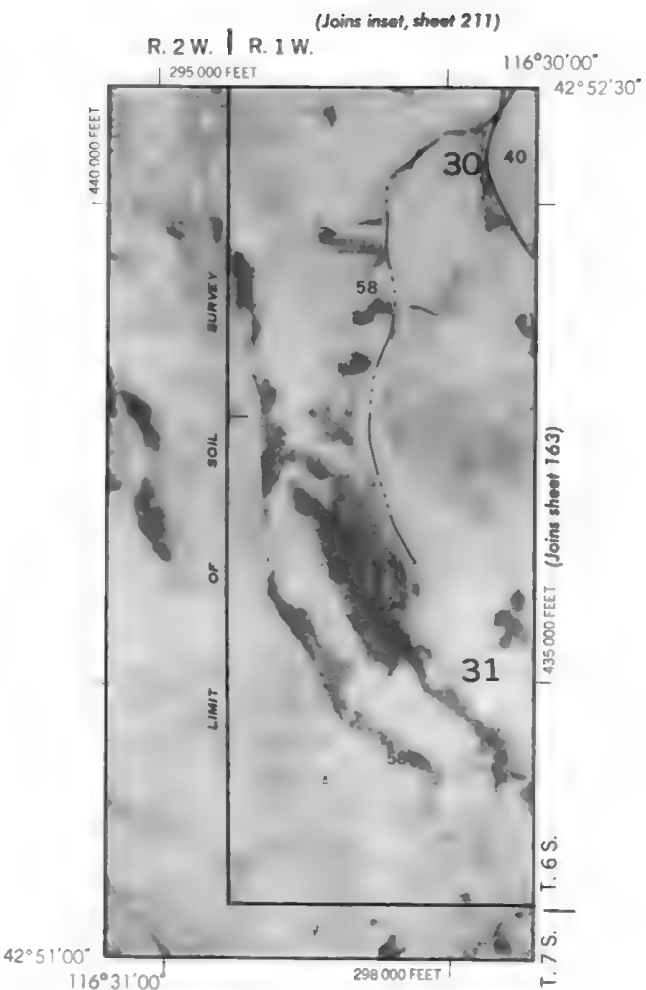


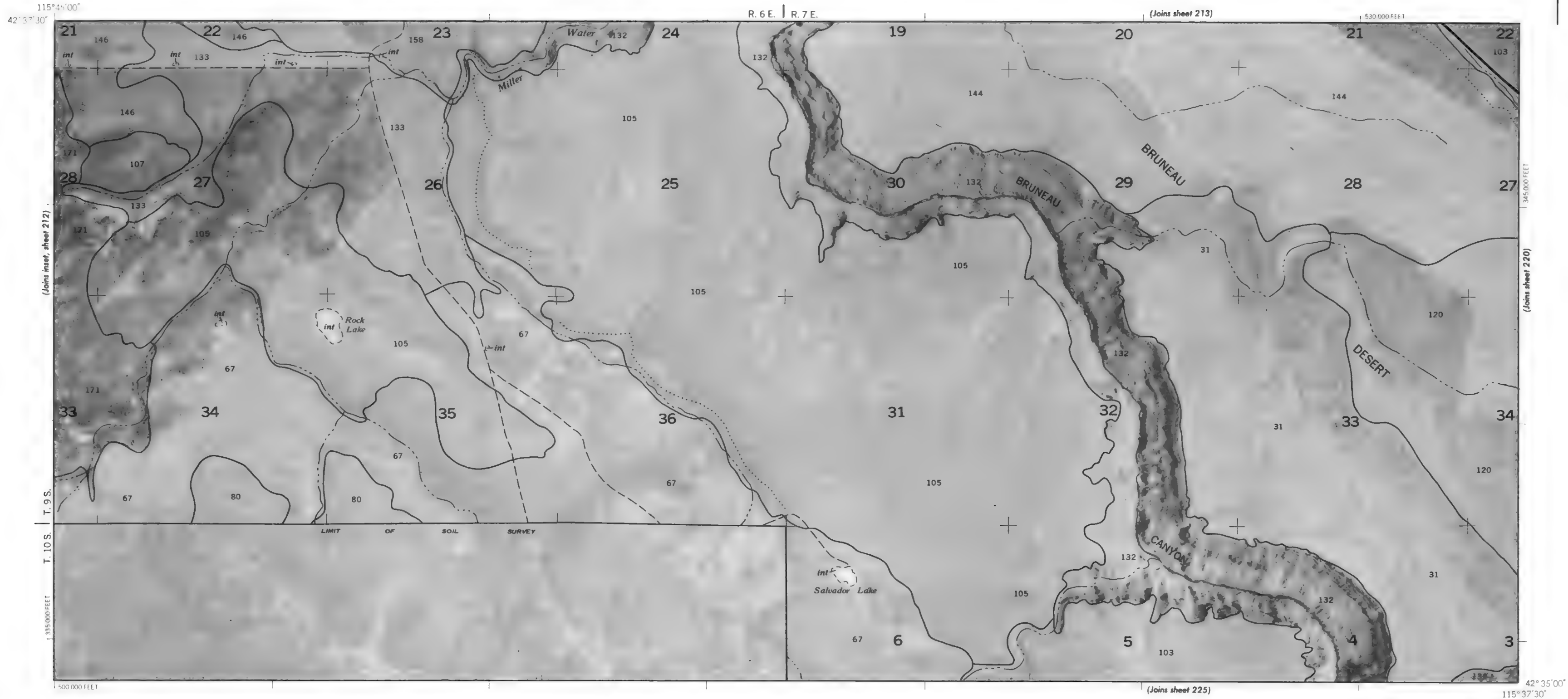


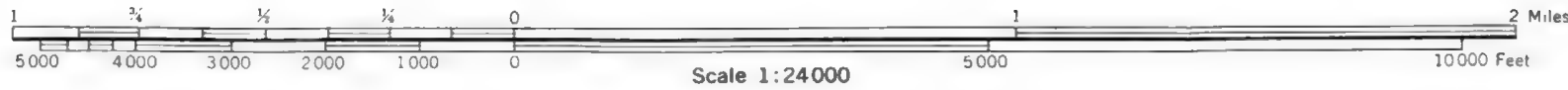
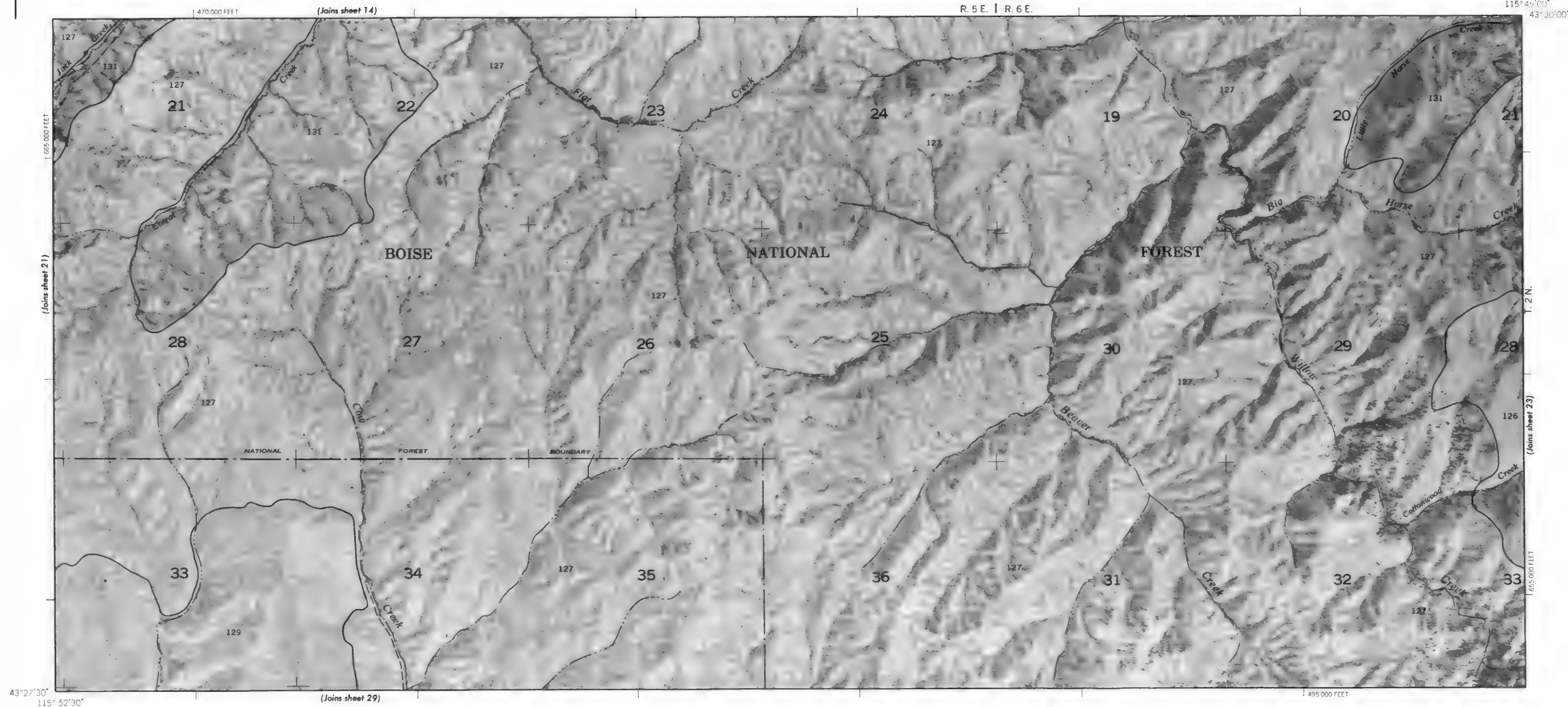




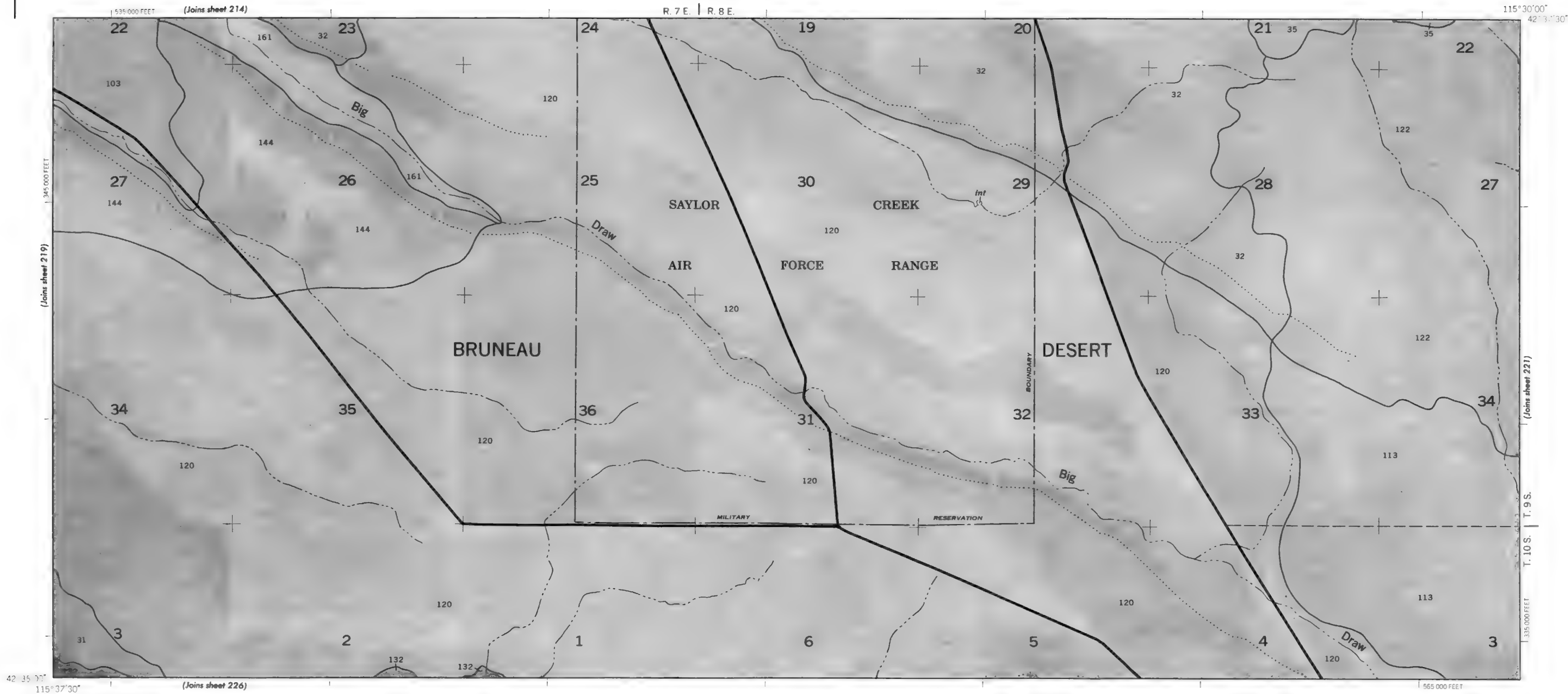




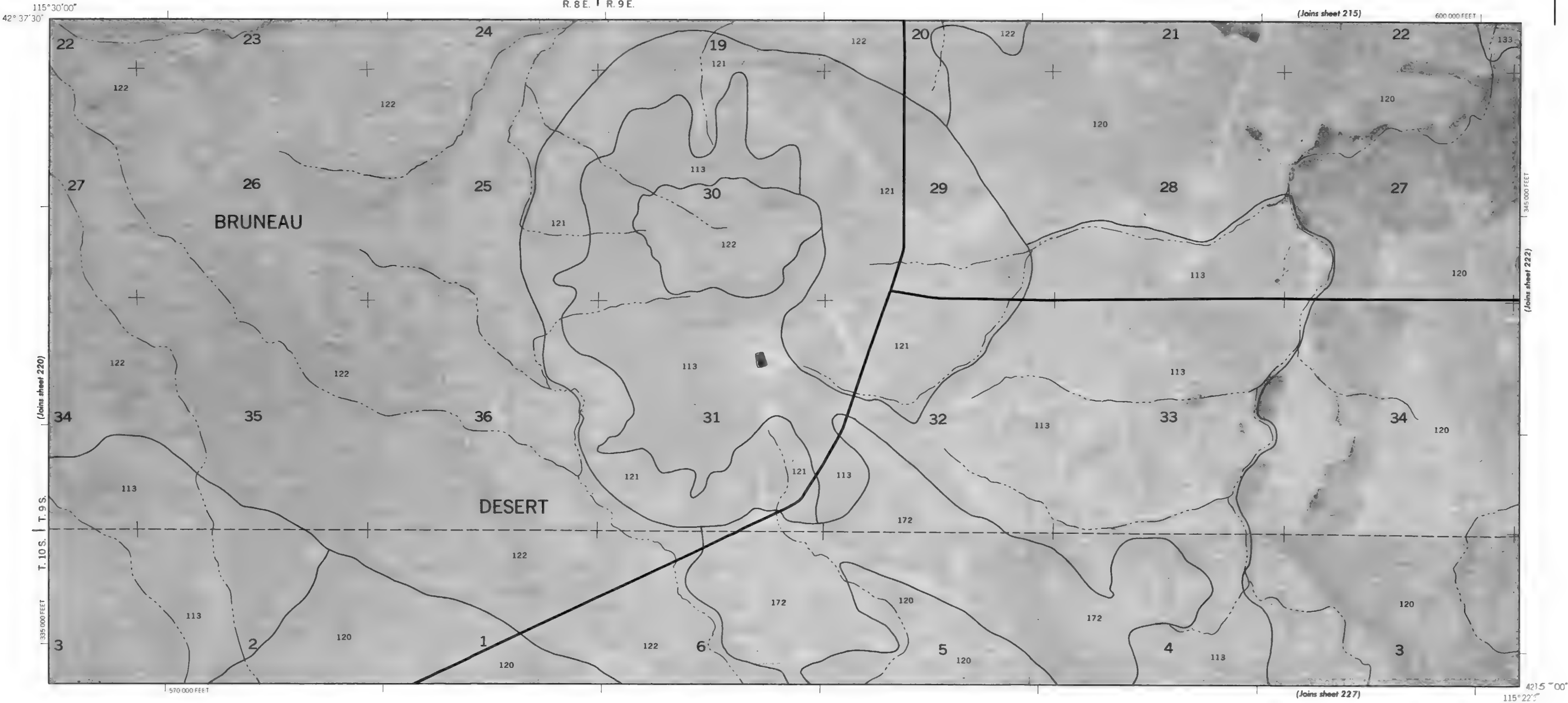


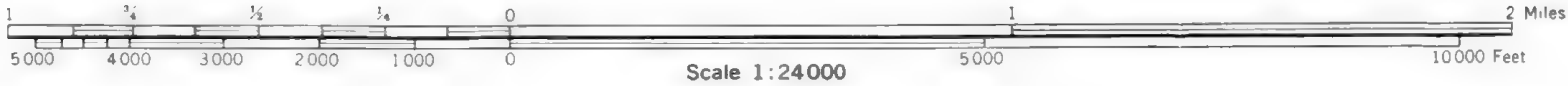
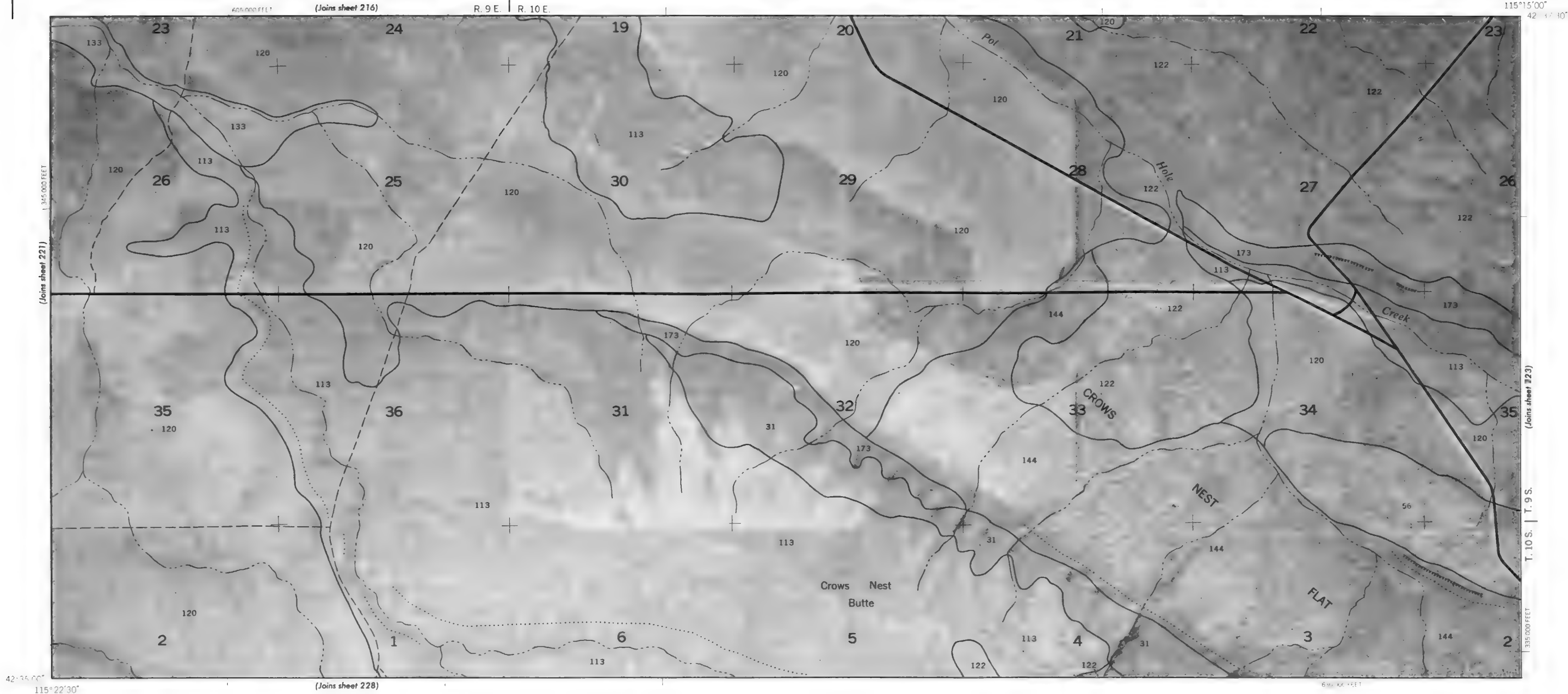


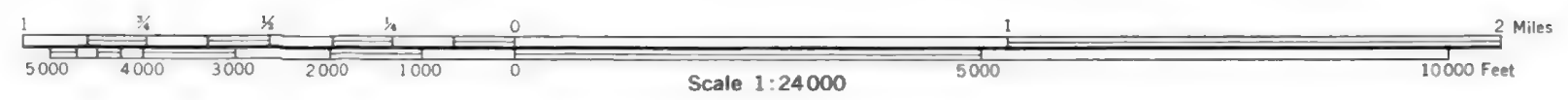
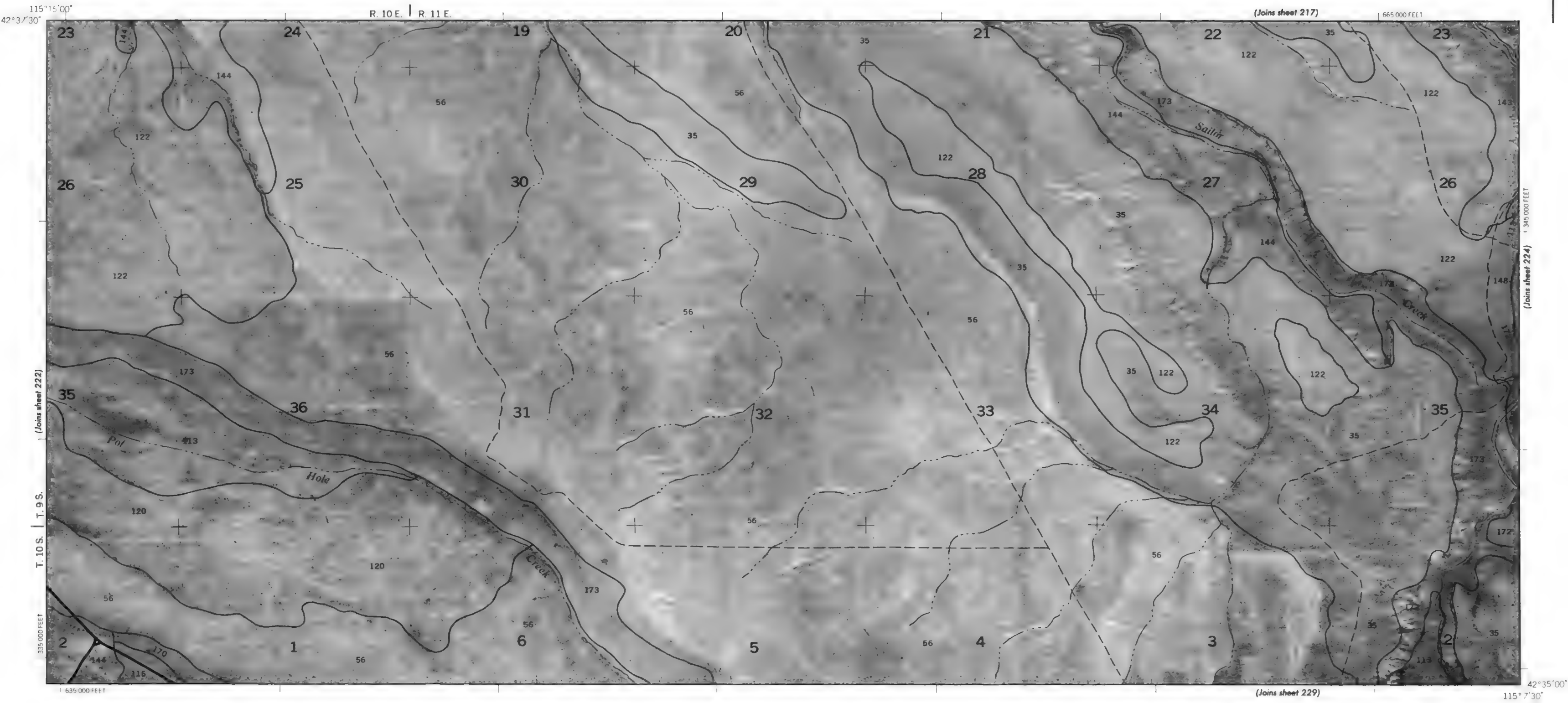




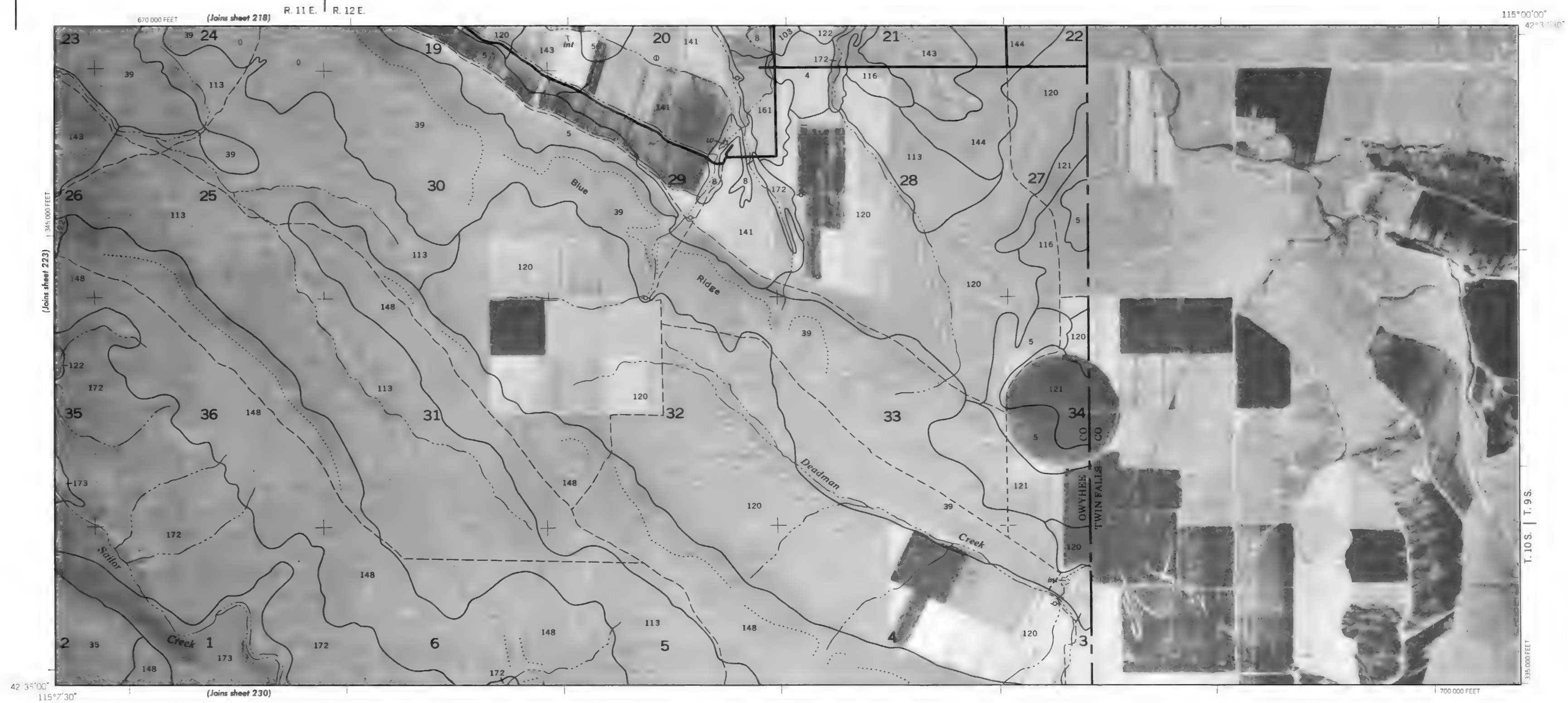




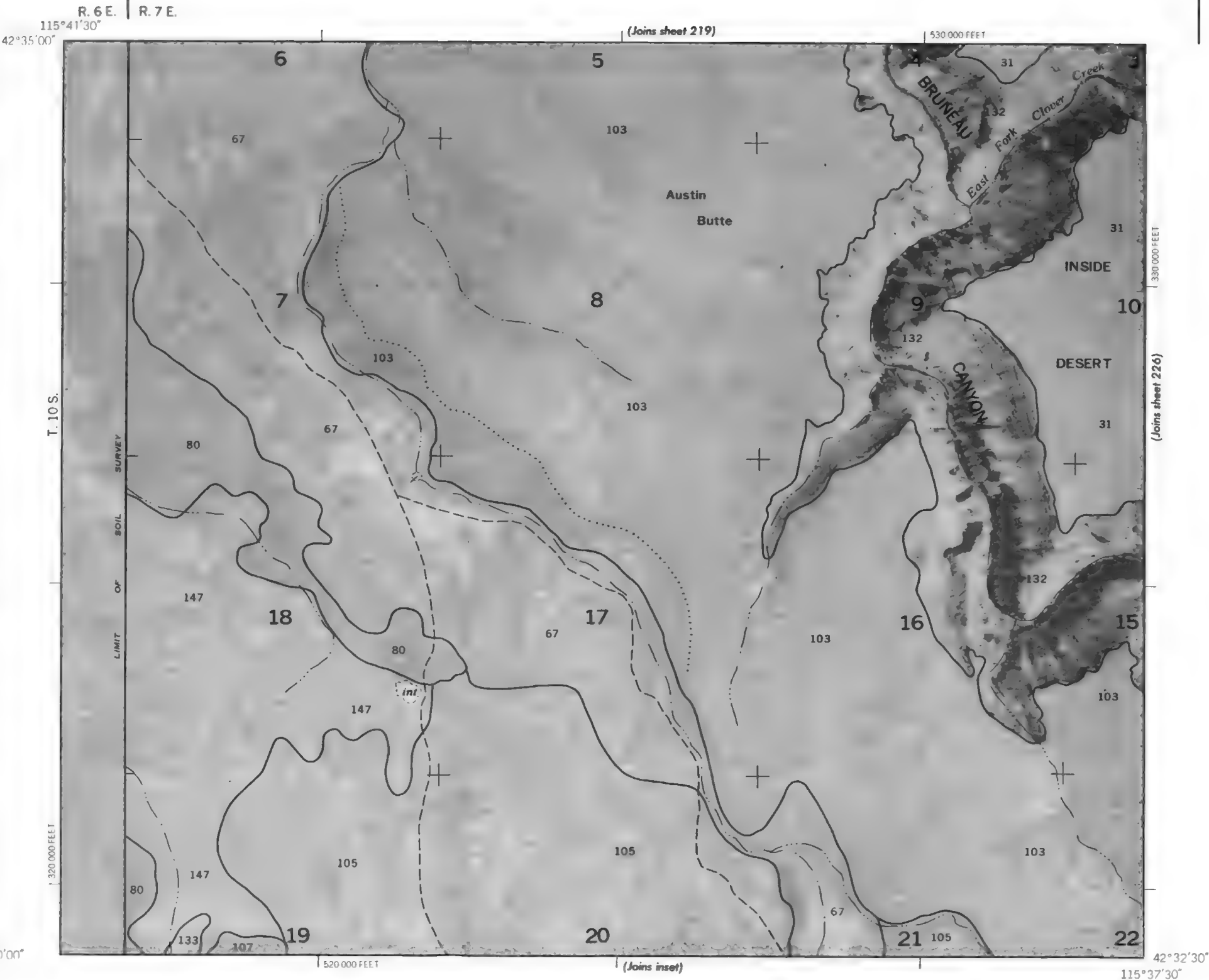
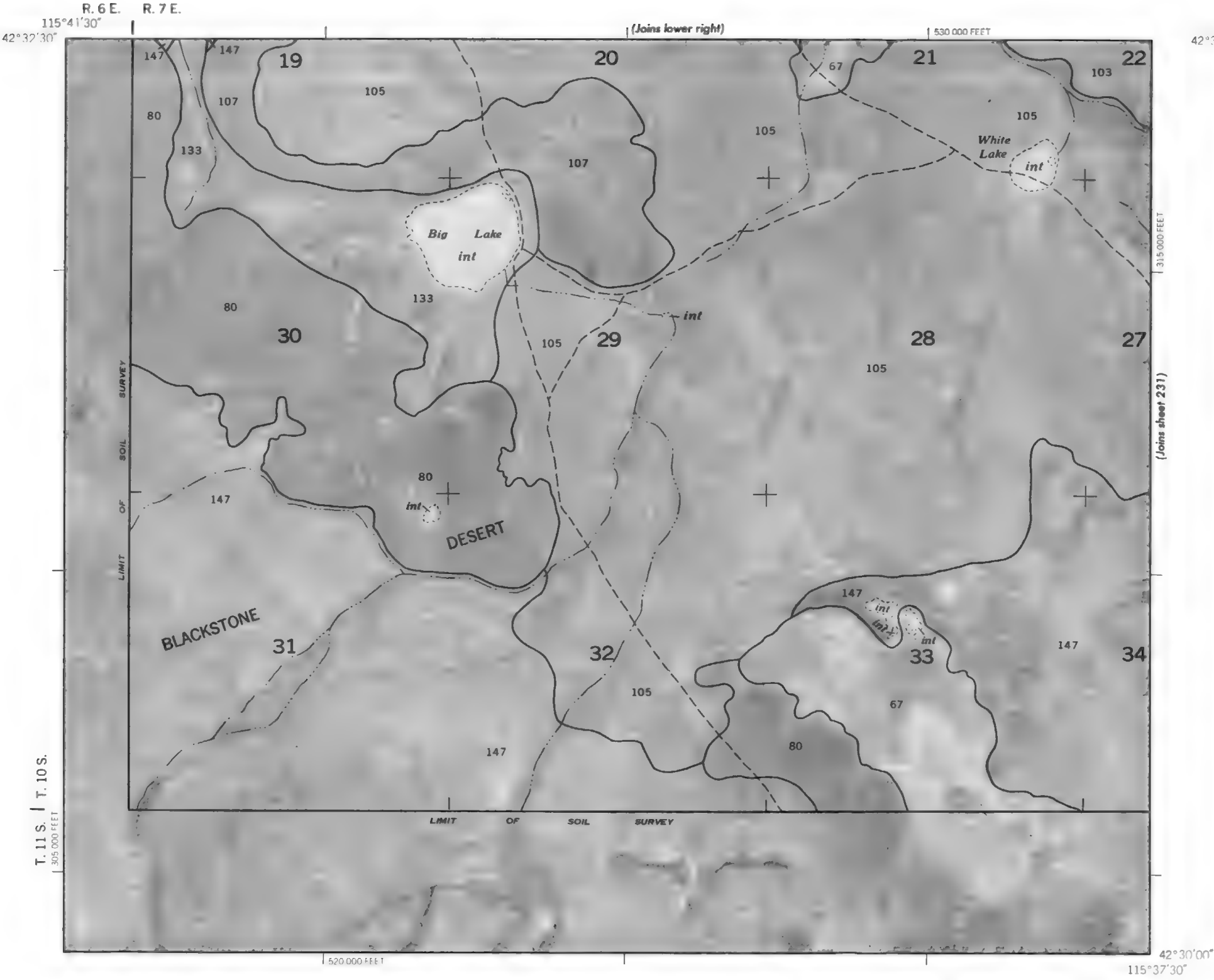


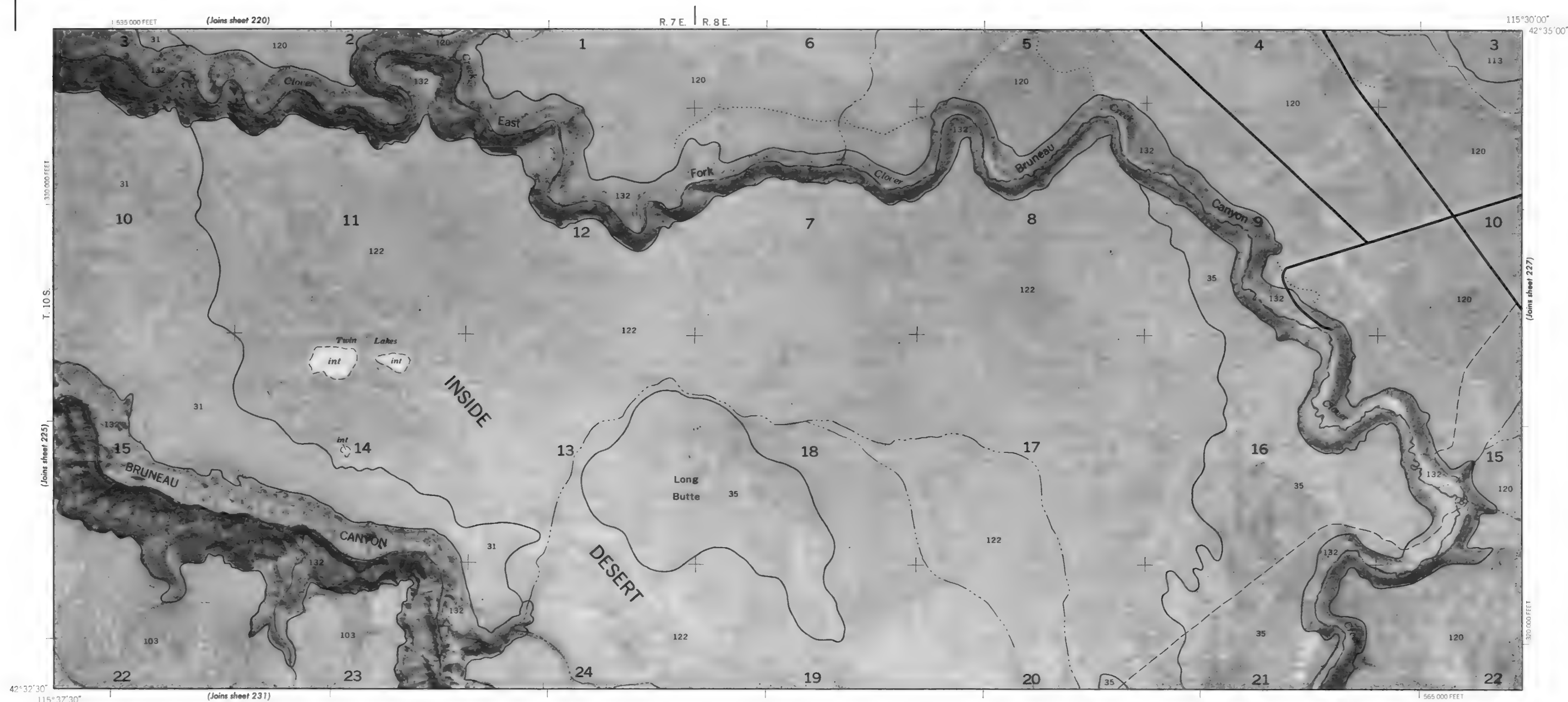


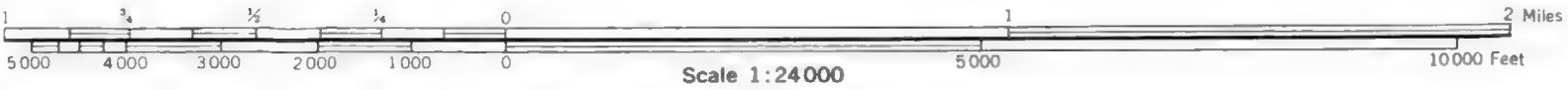
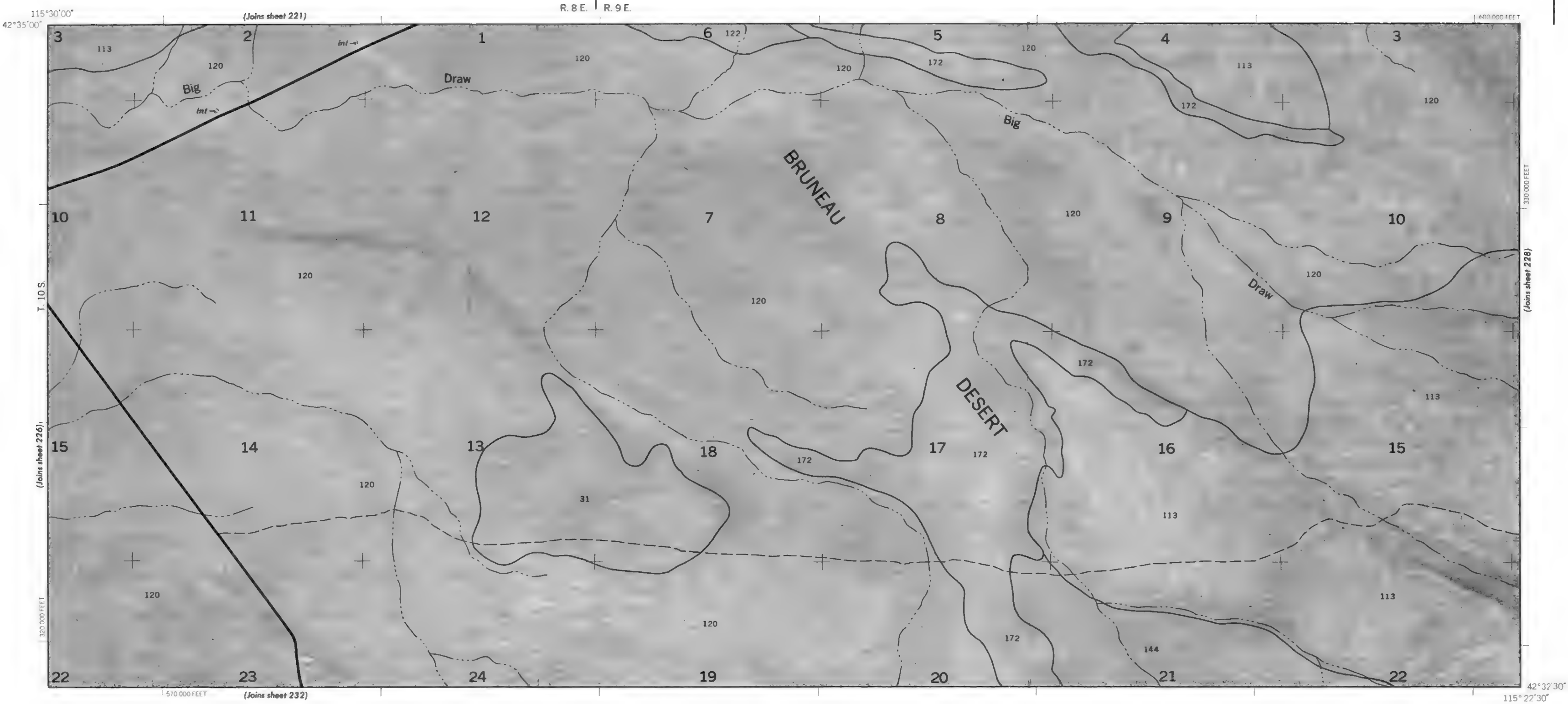
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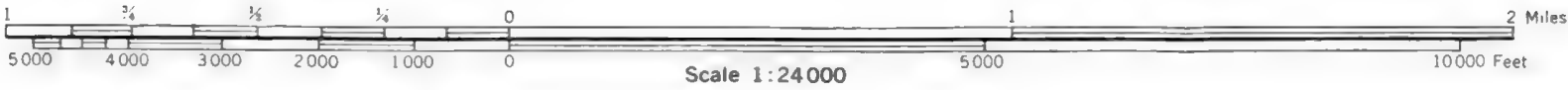
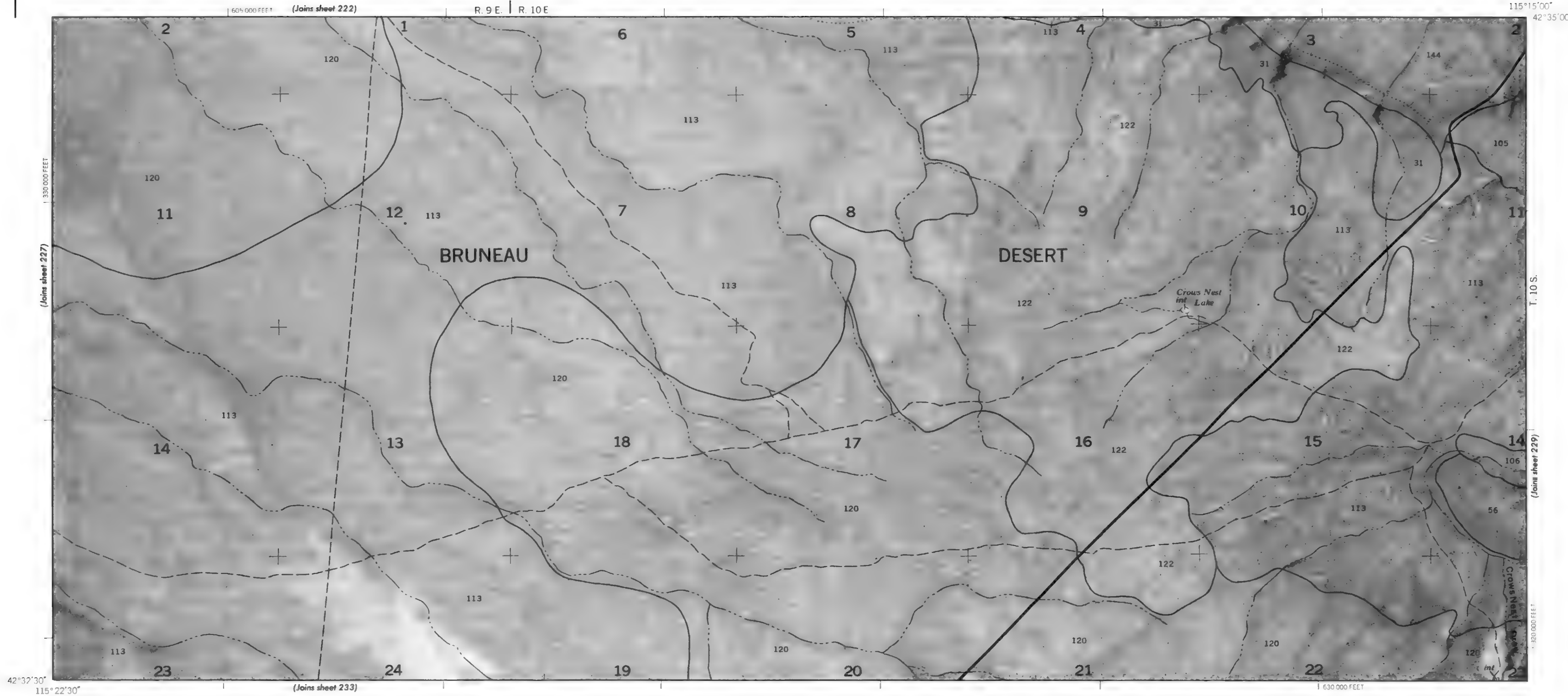




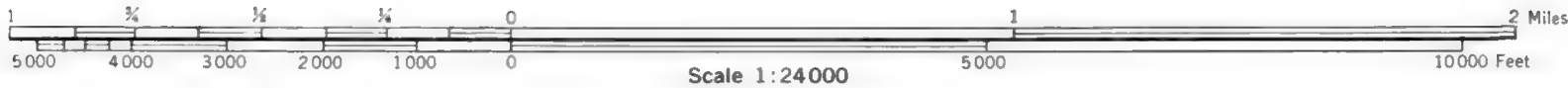
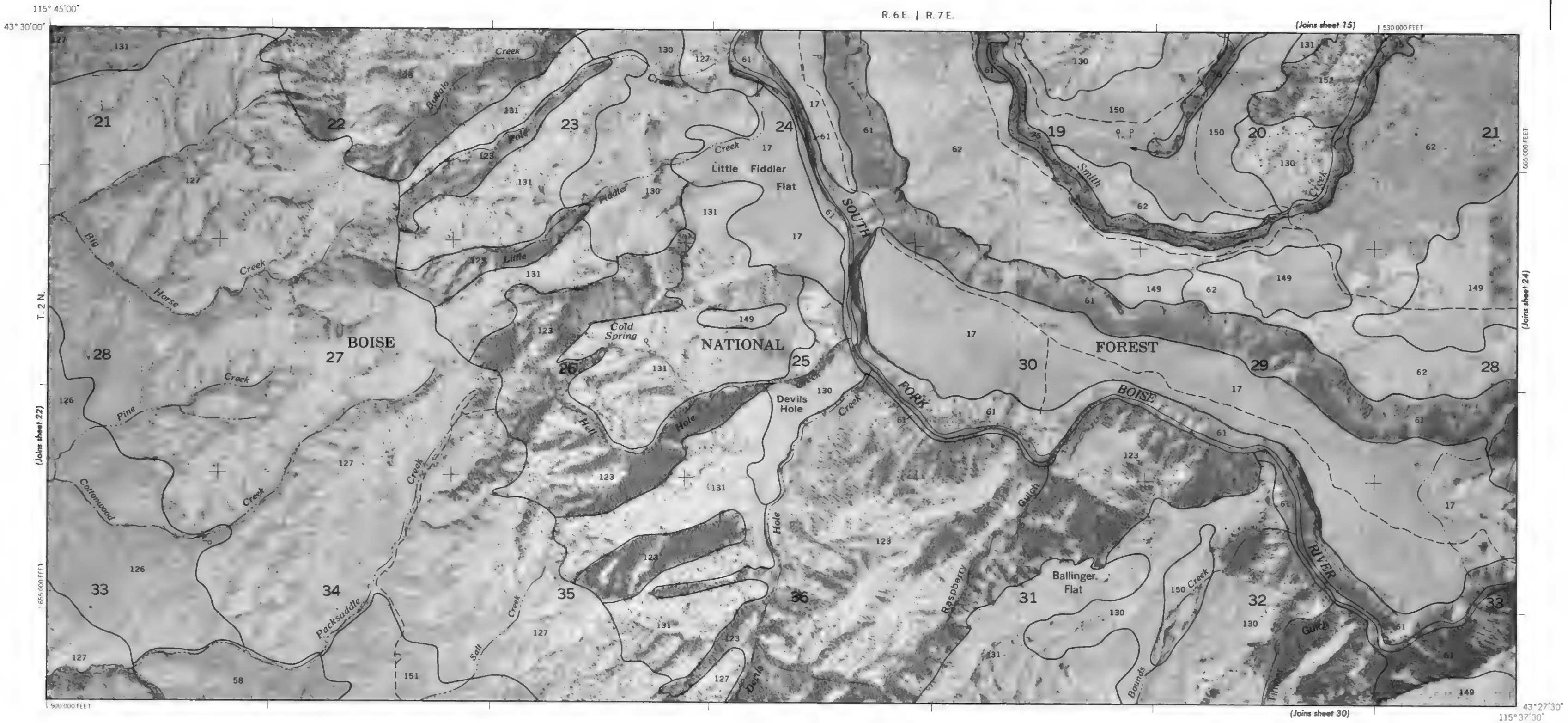




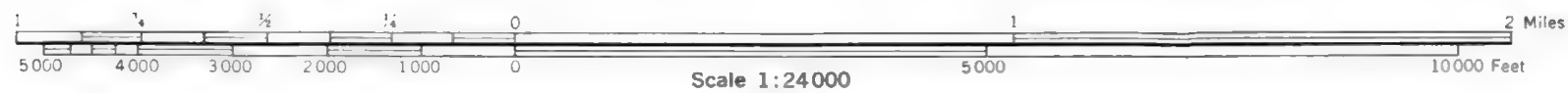
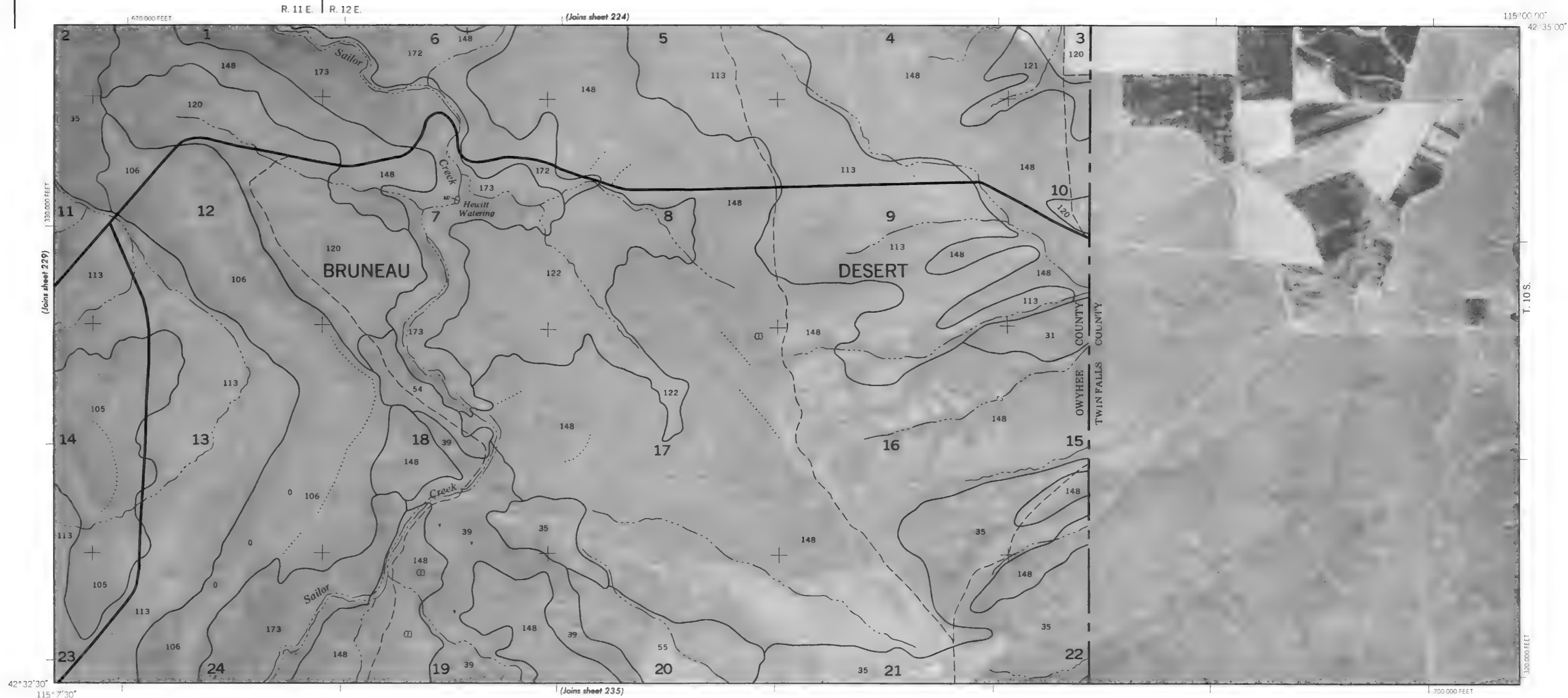


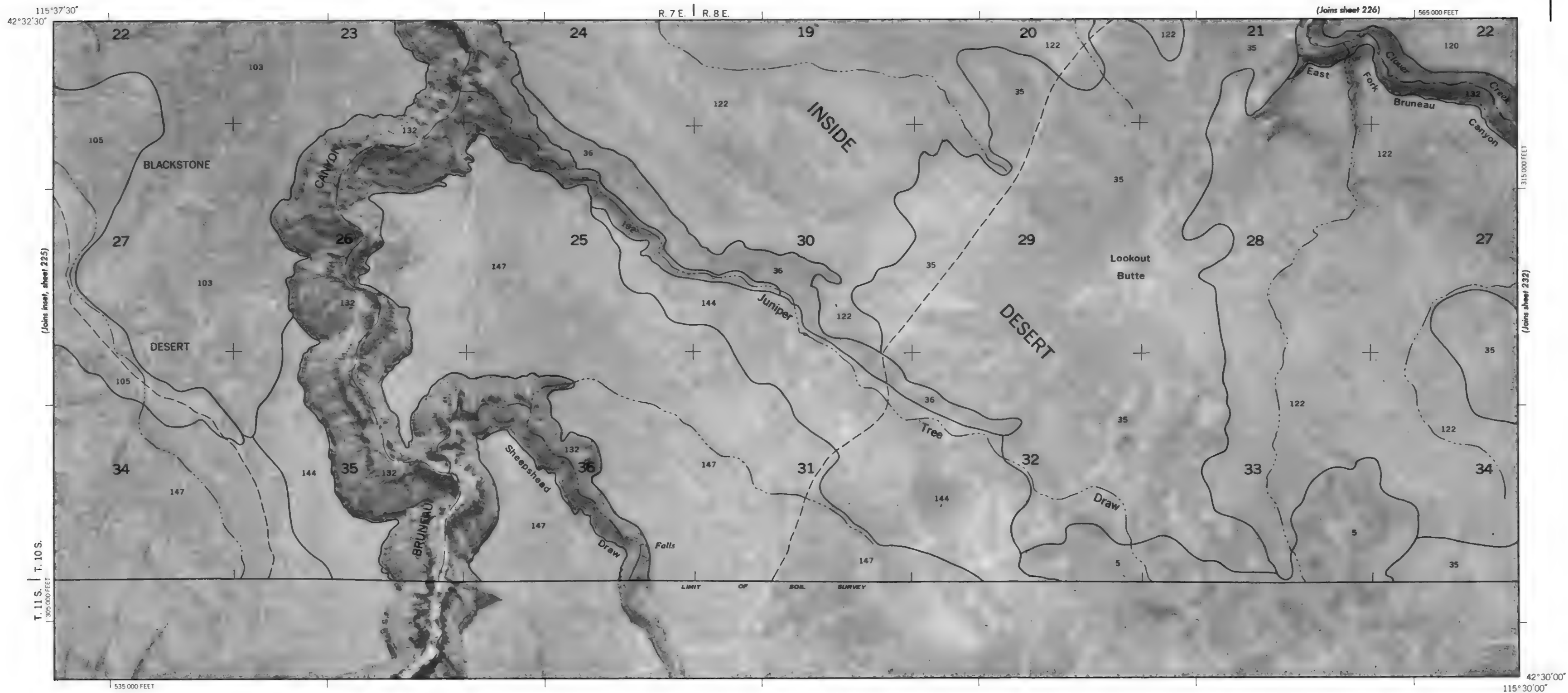


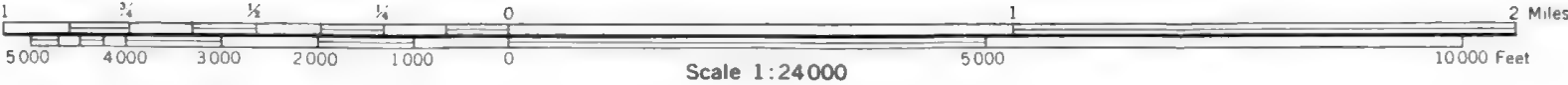
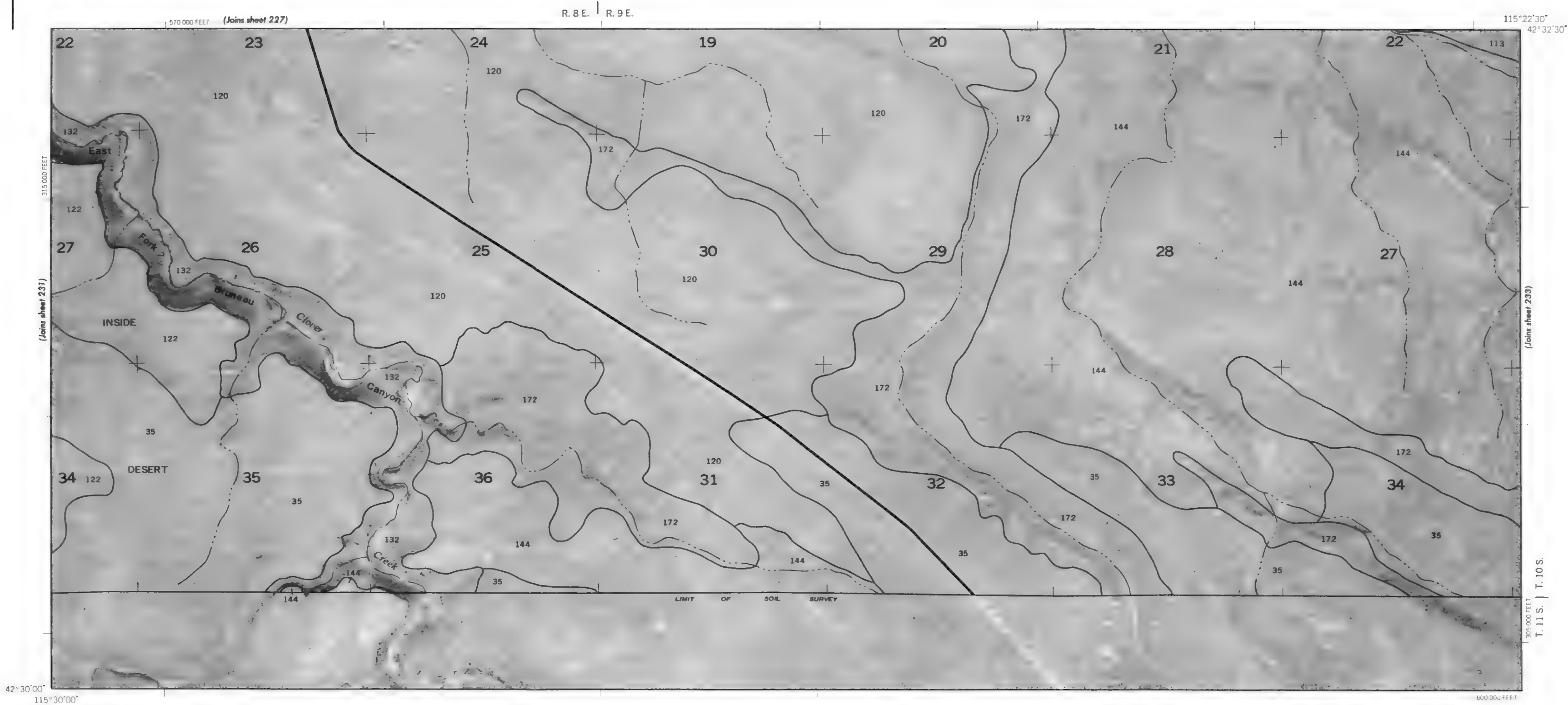


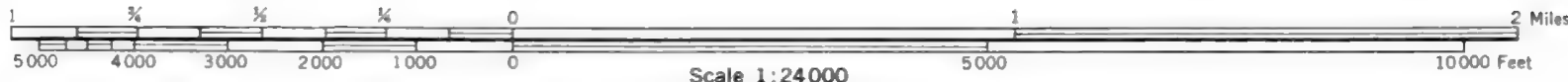
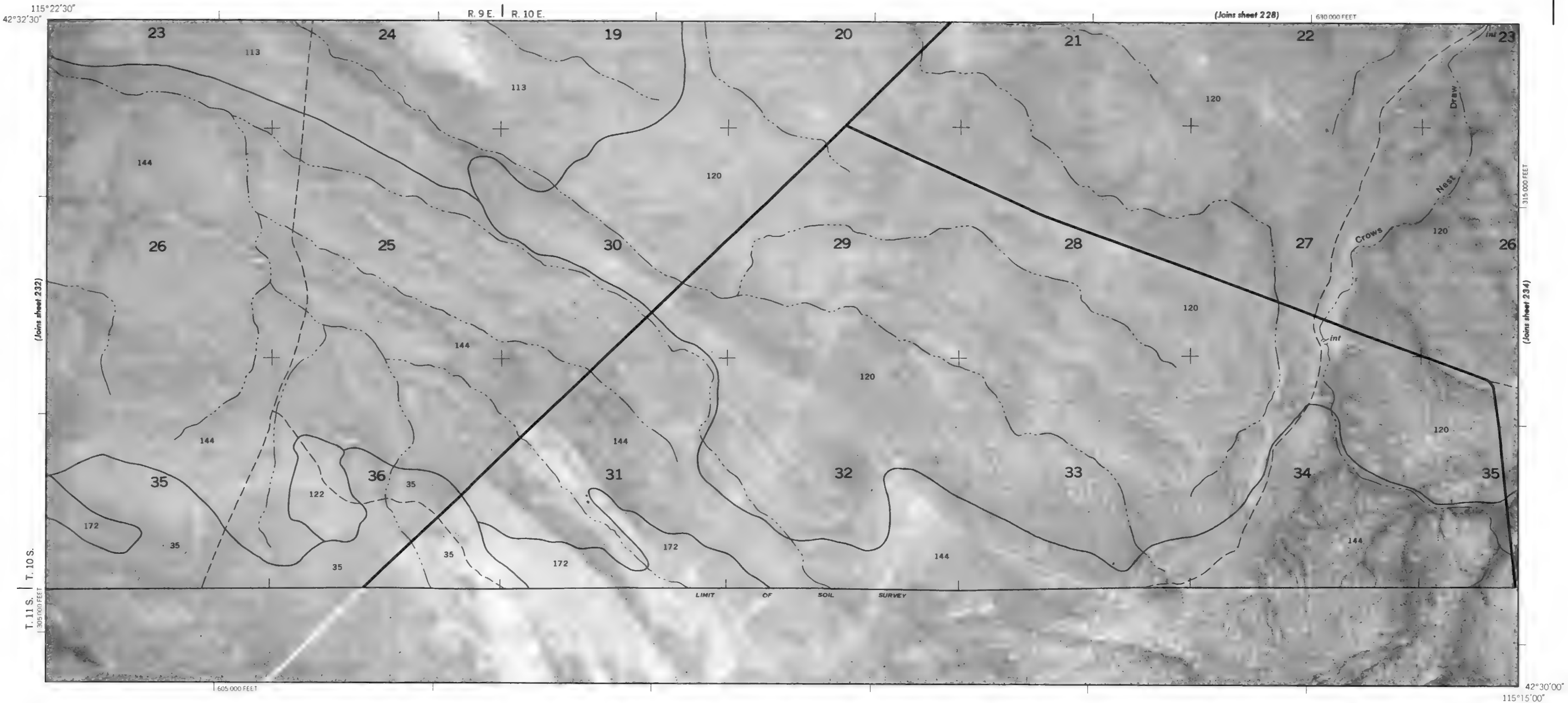




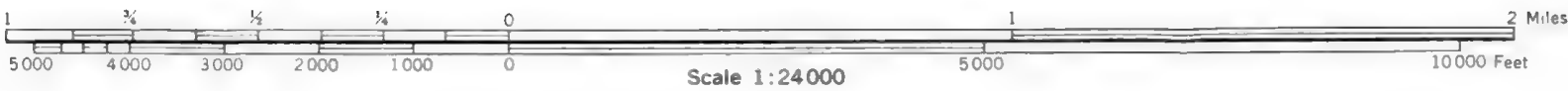
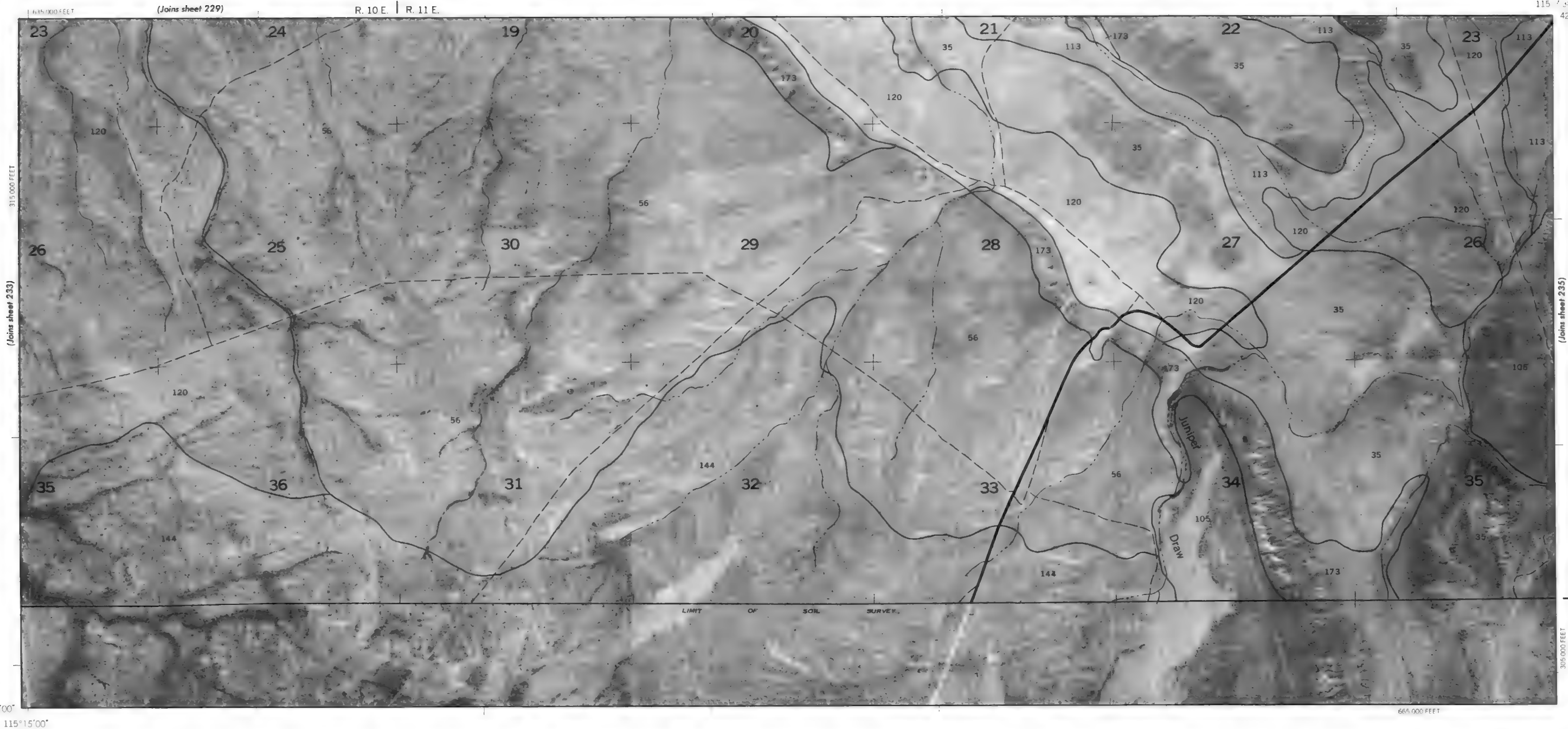


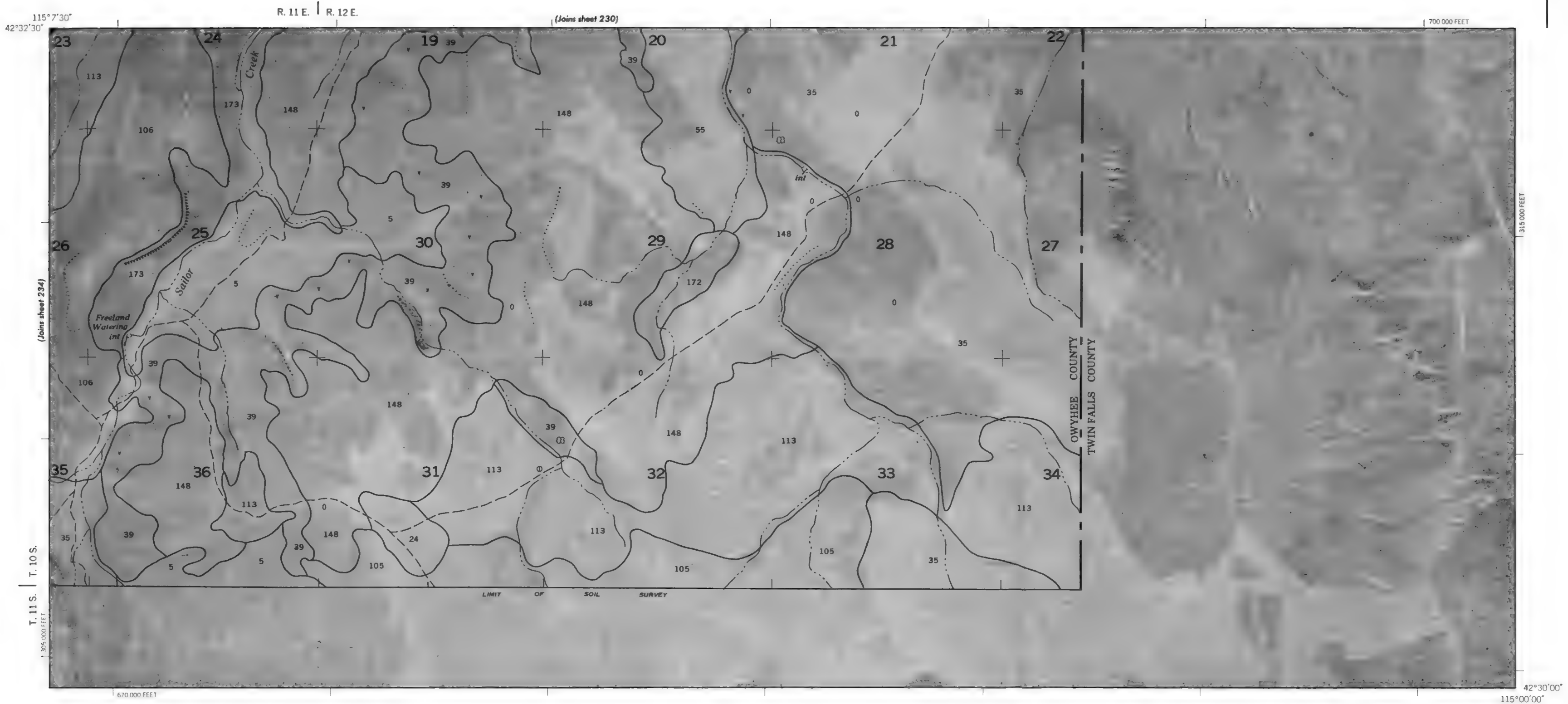


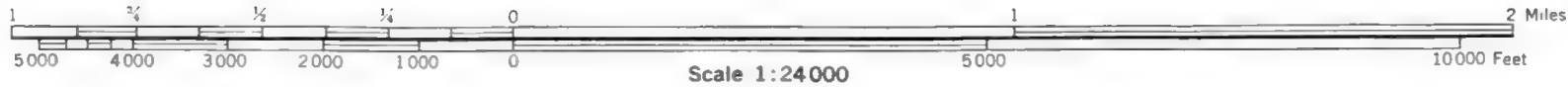
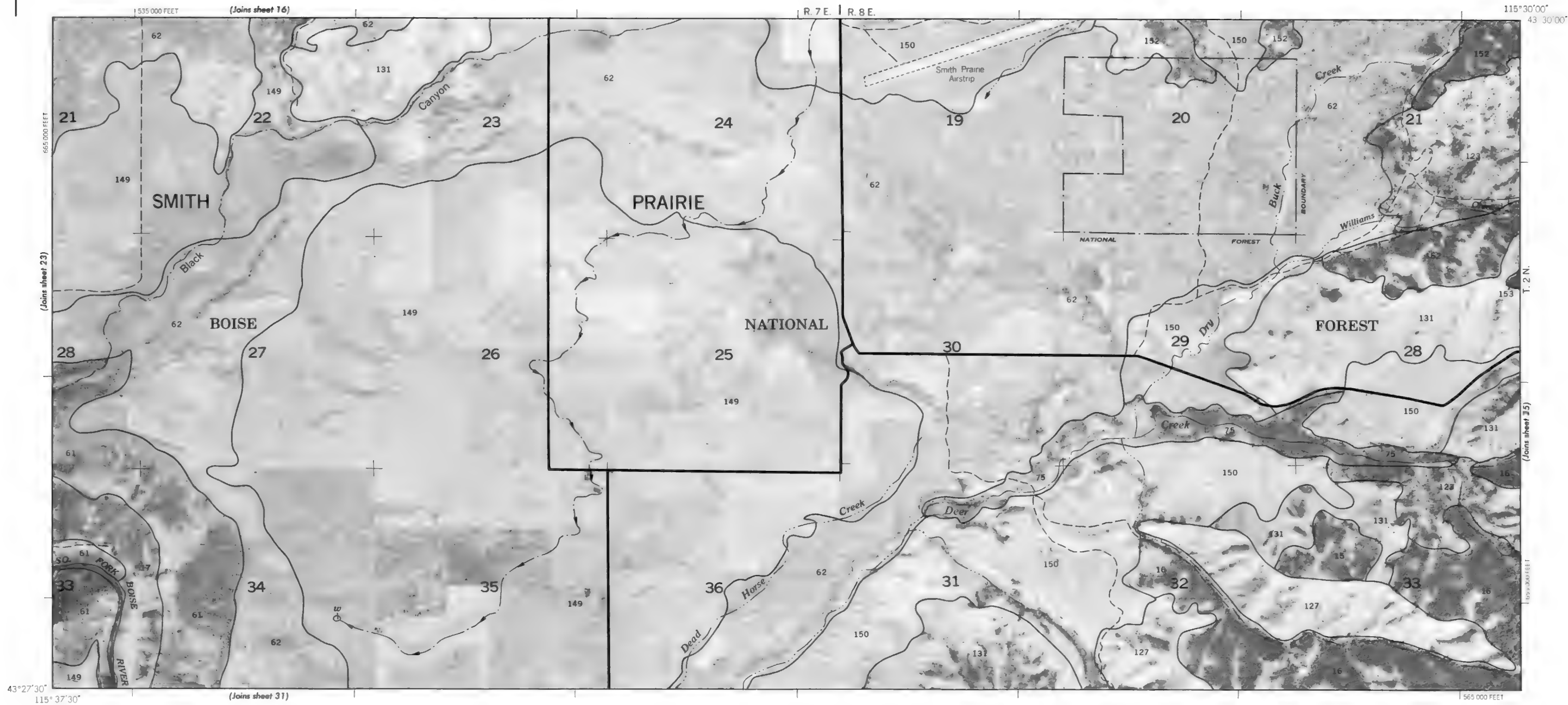




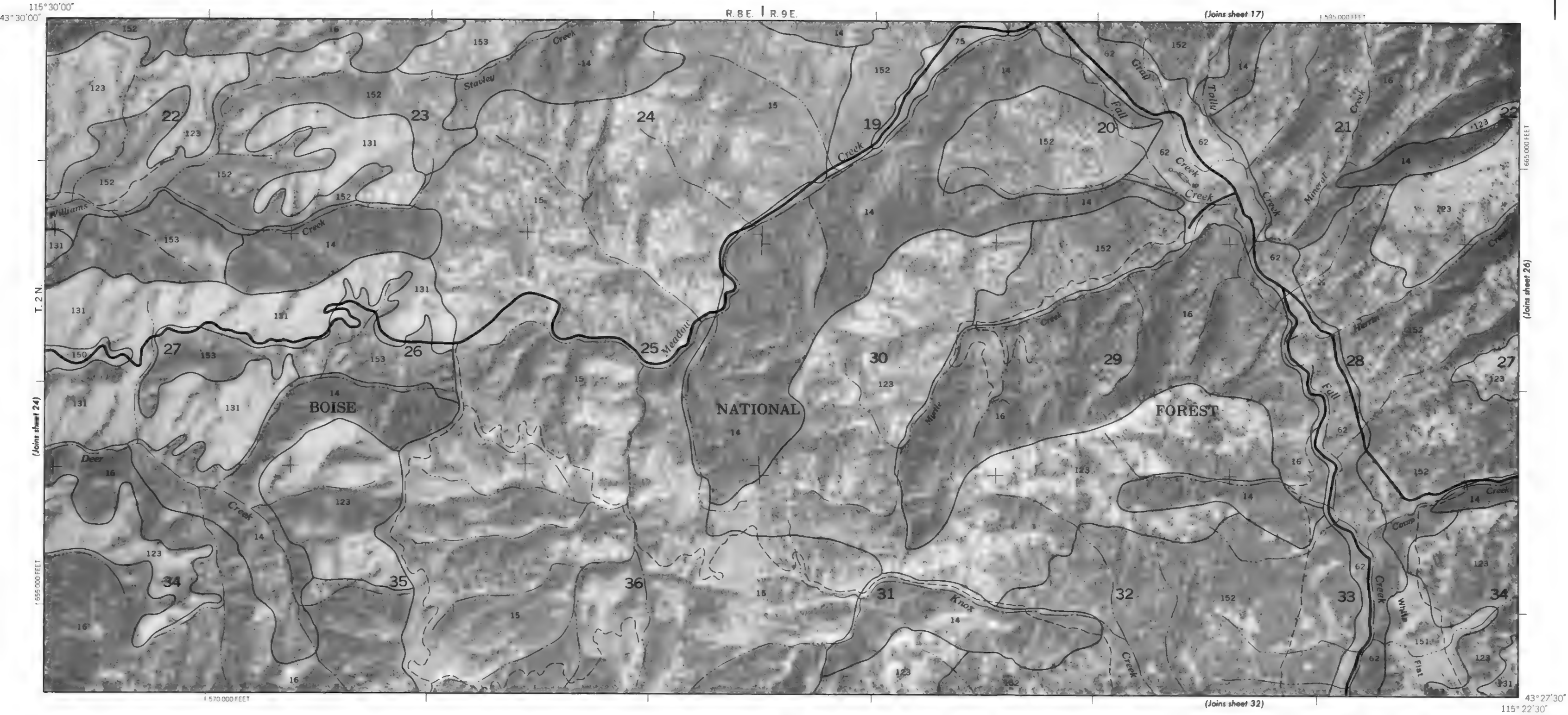








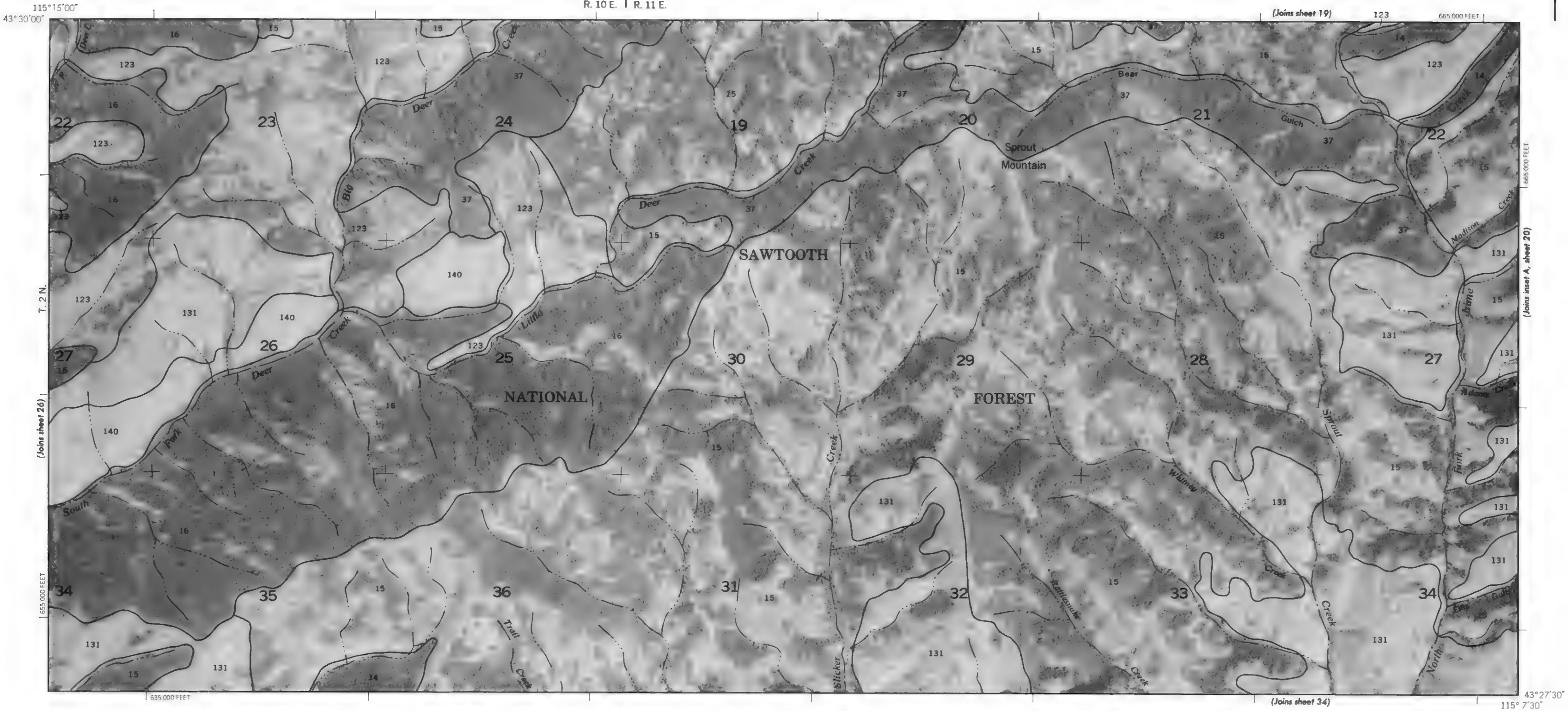




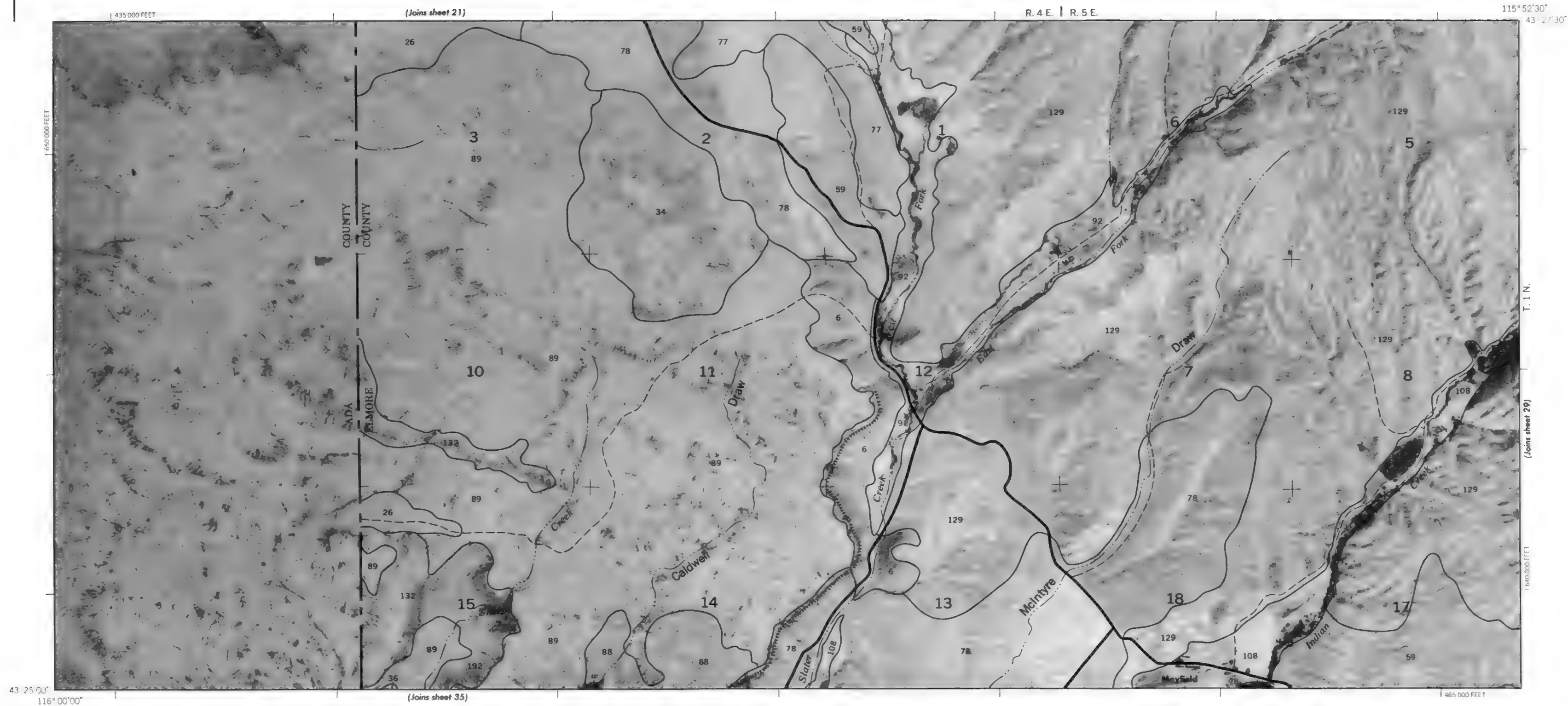
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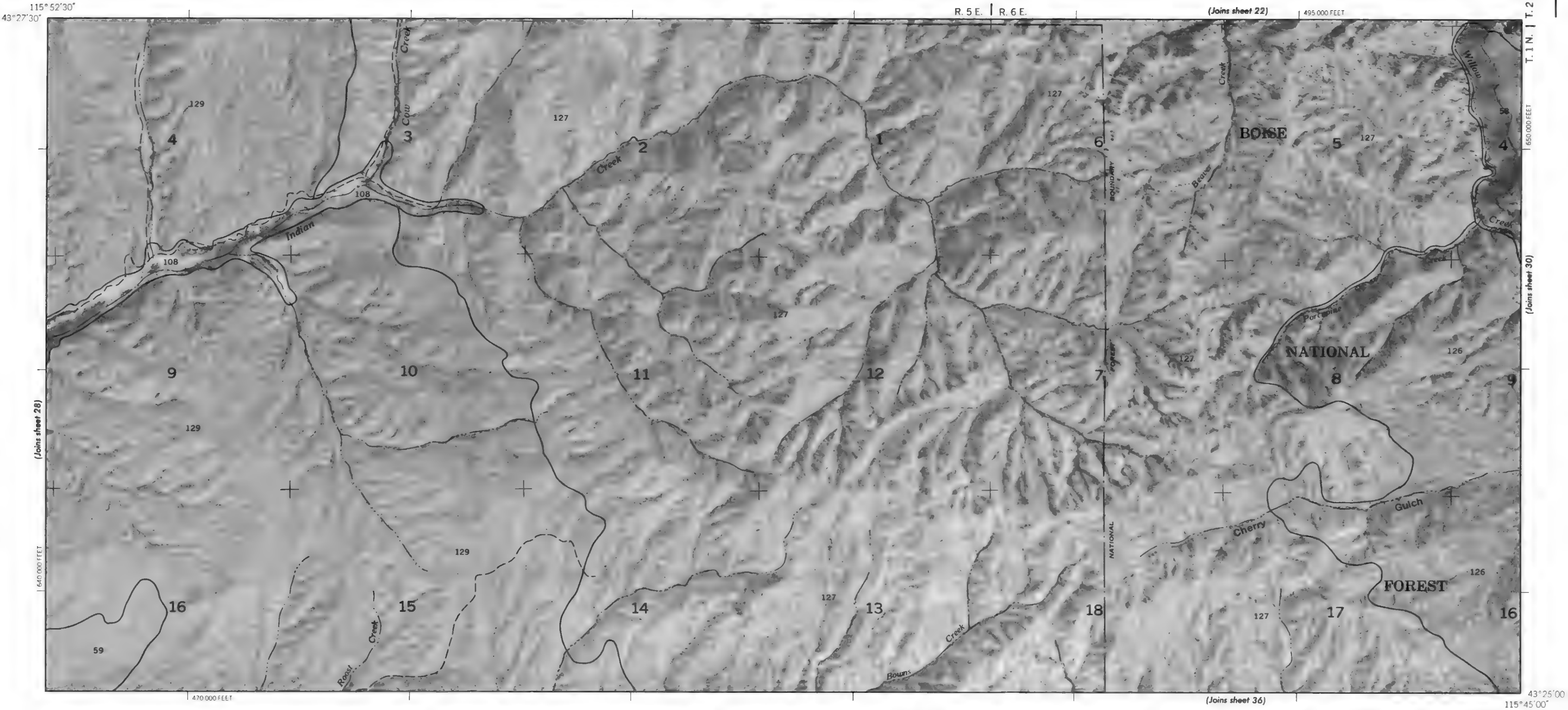


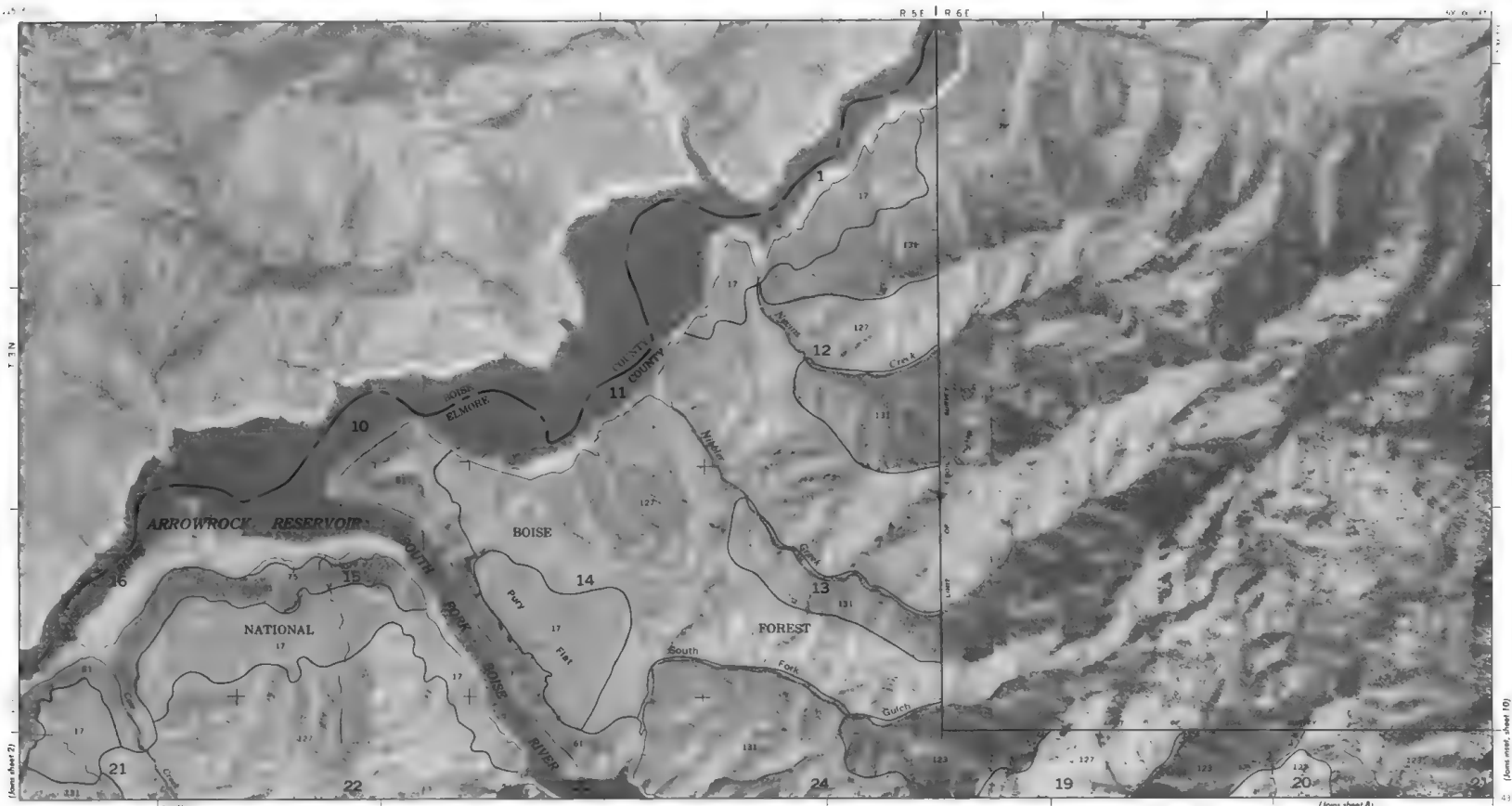


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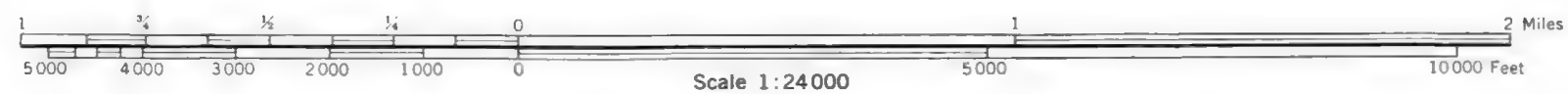
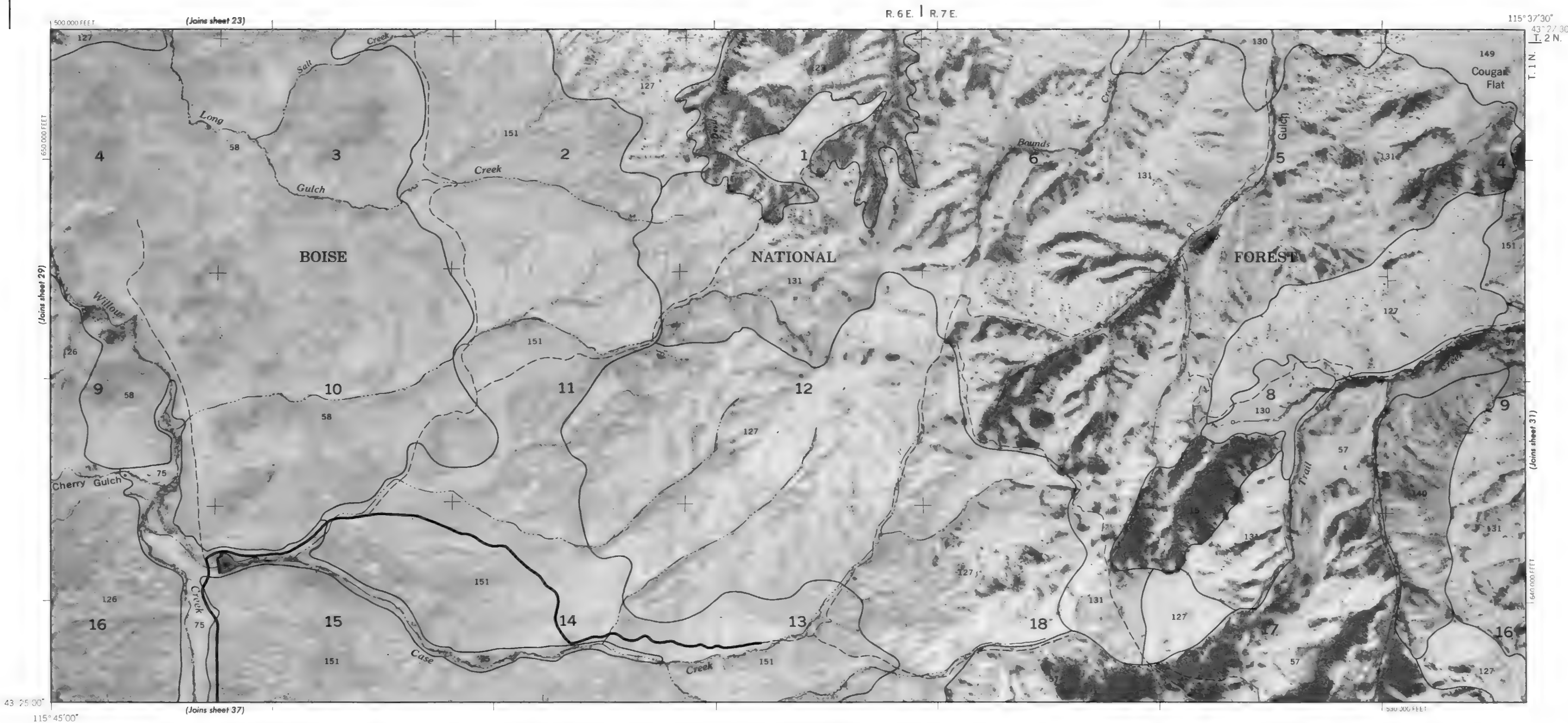
(Join sheet 2)

(Join sheet 10)

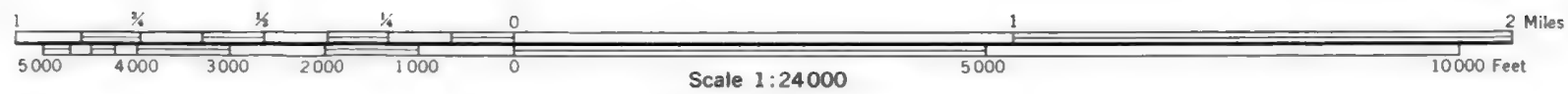
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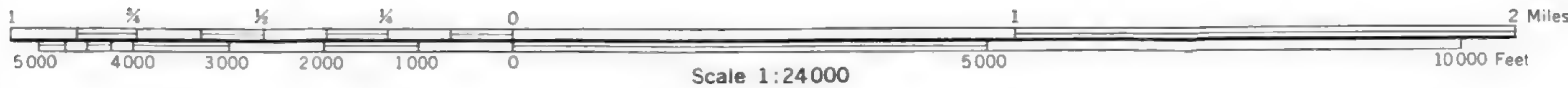


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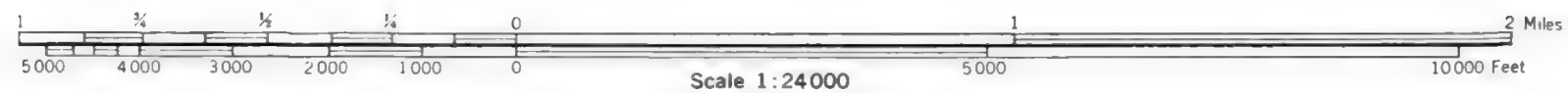




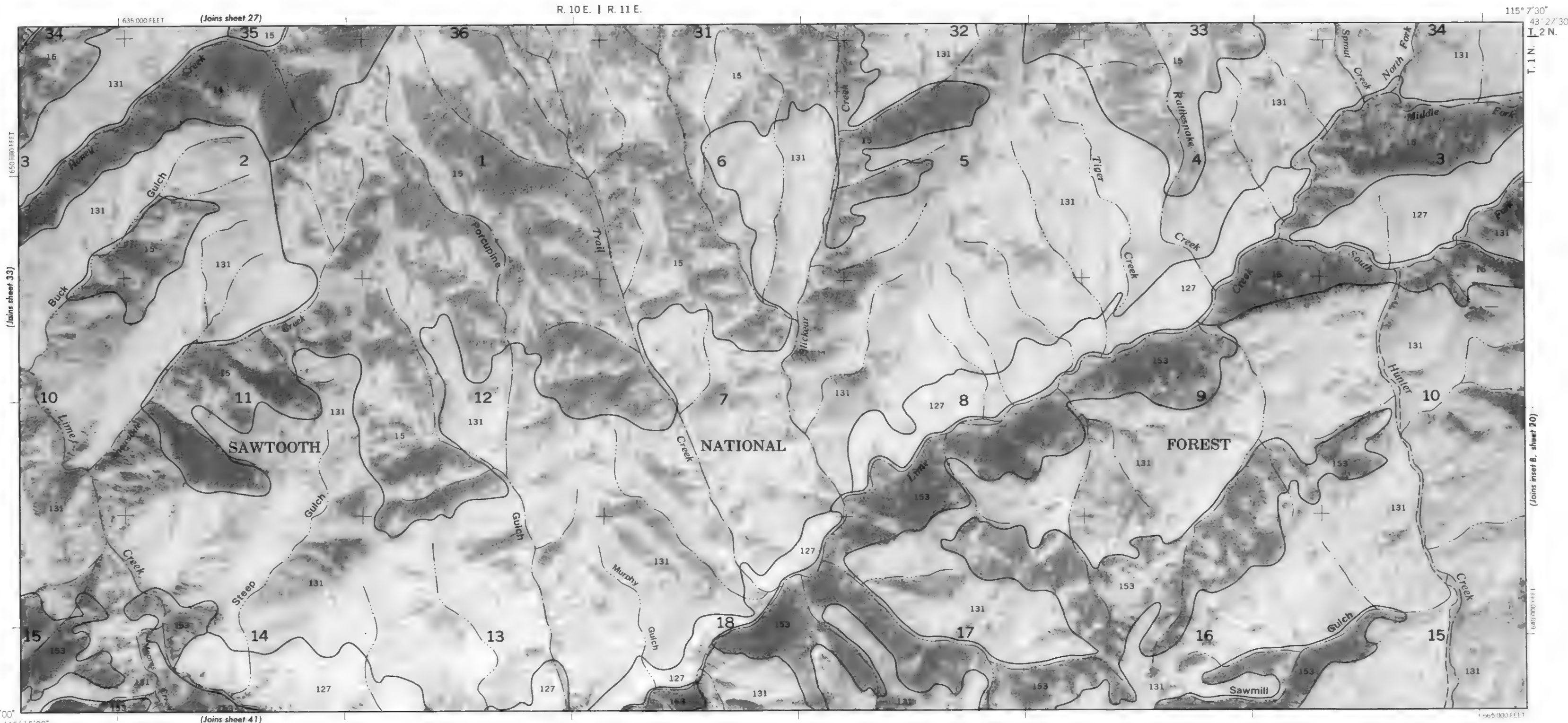








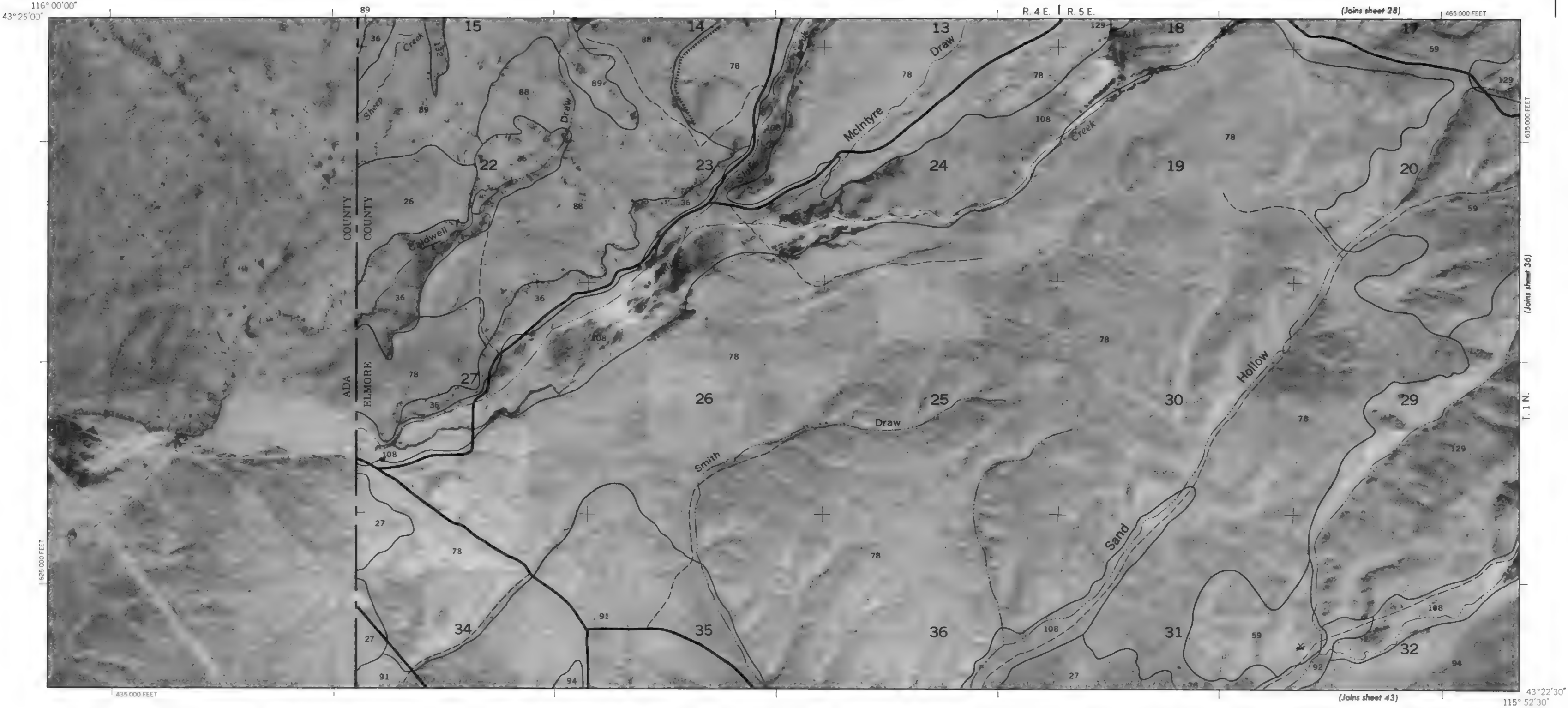




43° 25' 00"  
115° 15' 00"

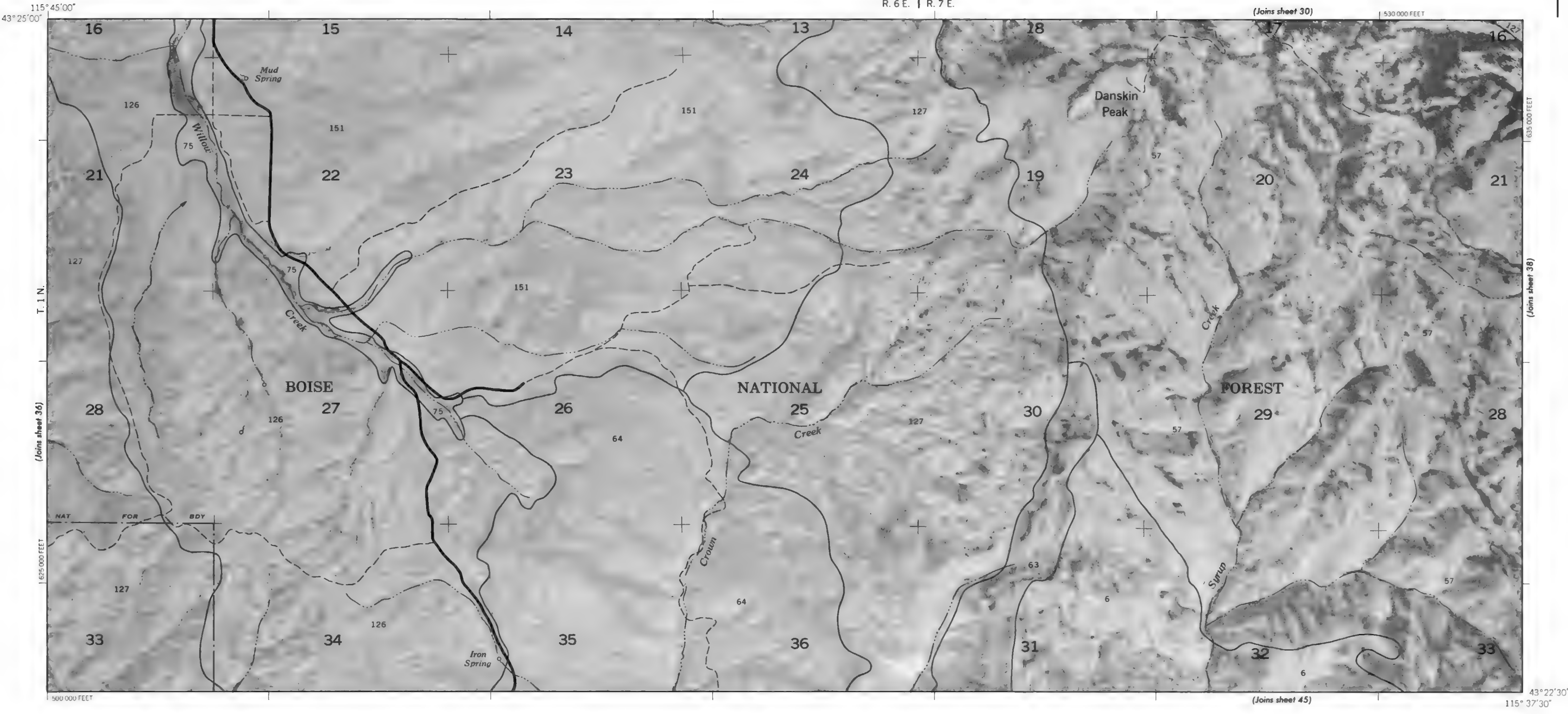
115° 7' 30"  
43° 27' 30"  
T. 1 N.



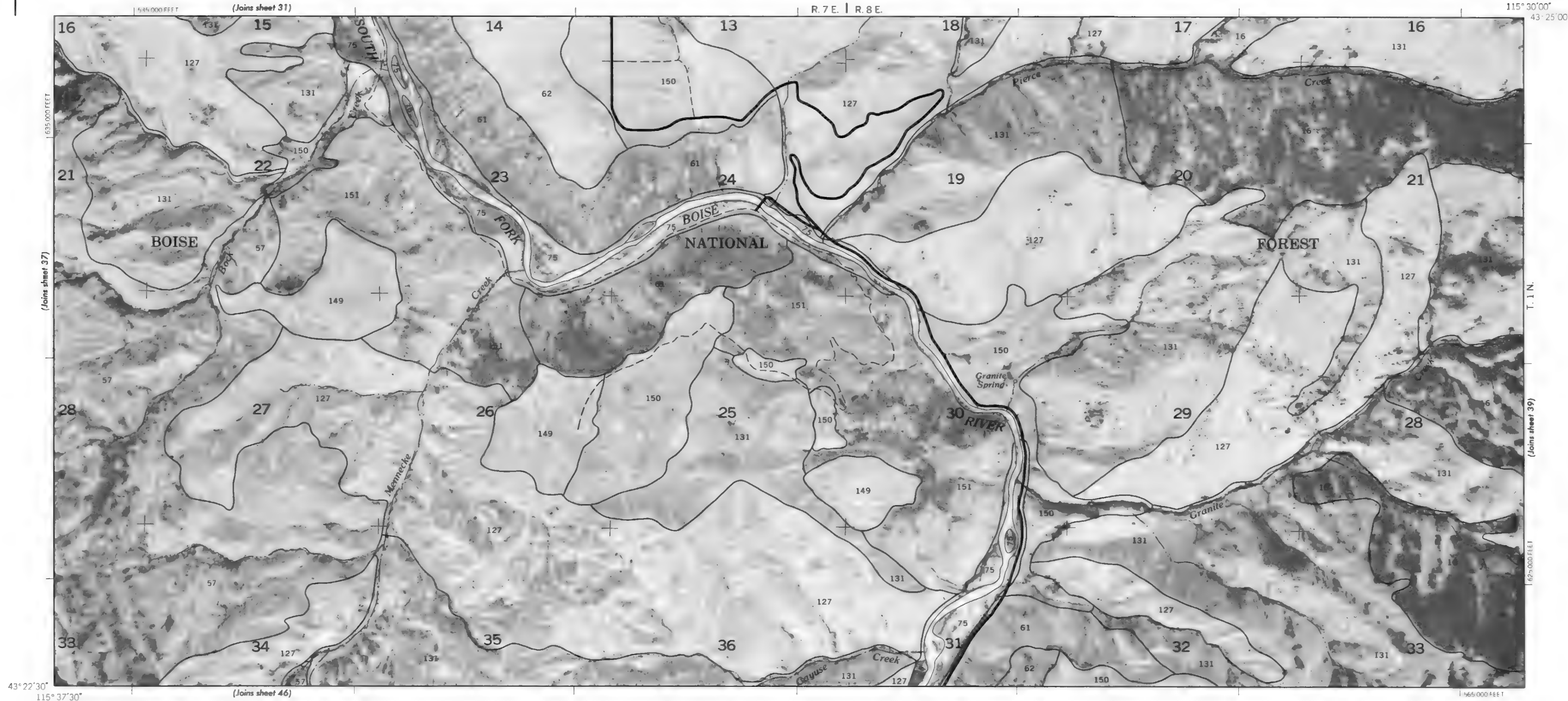


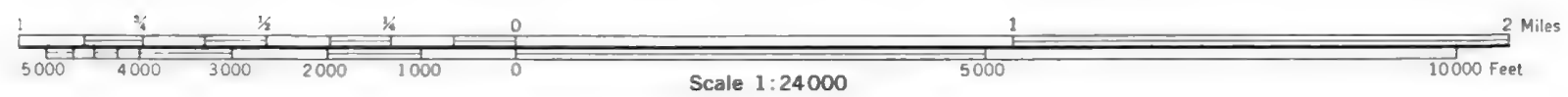
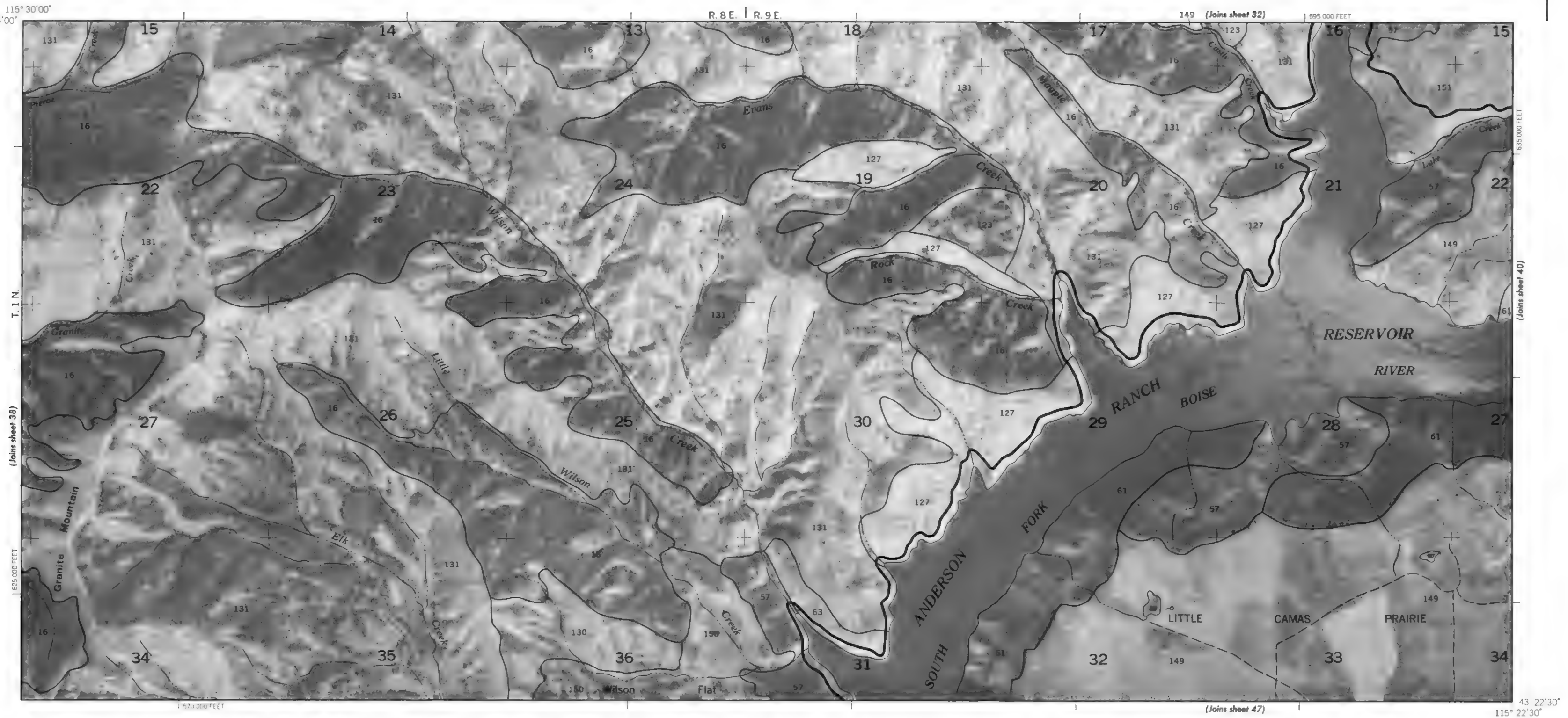




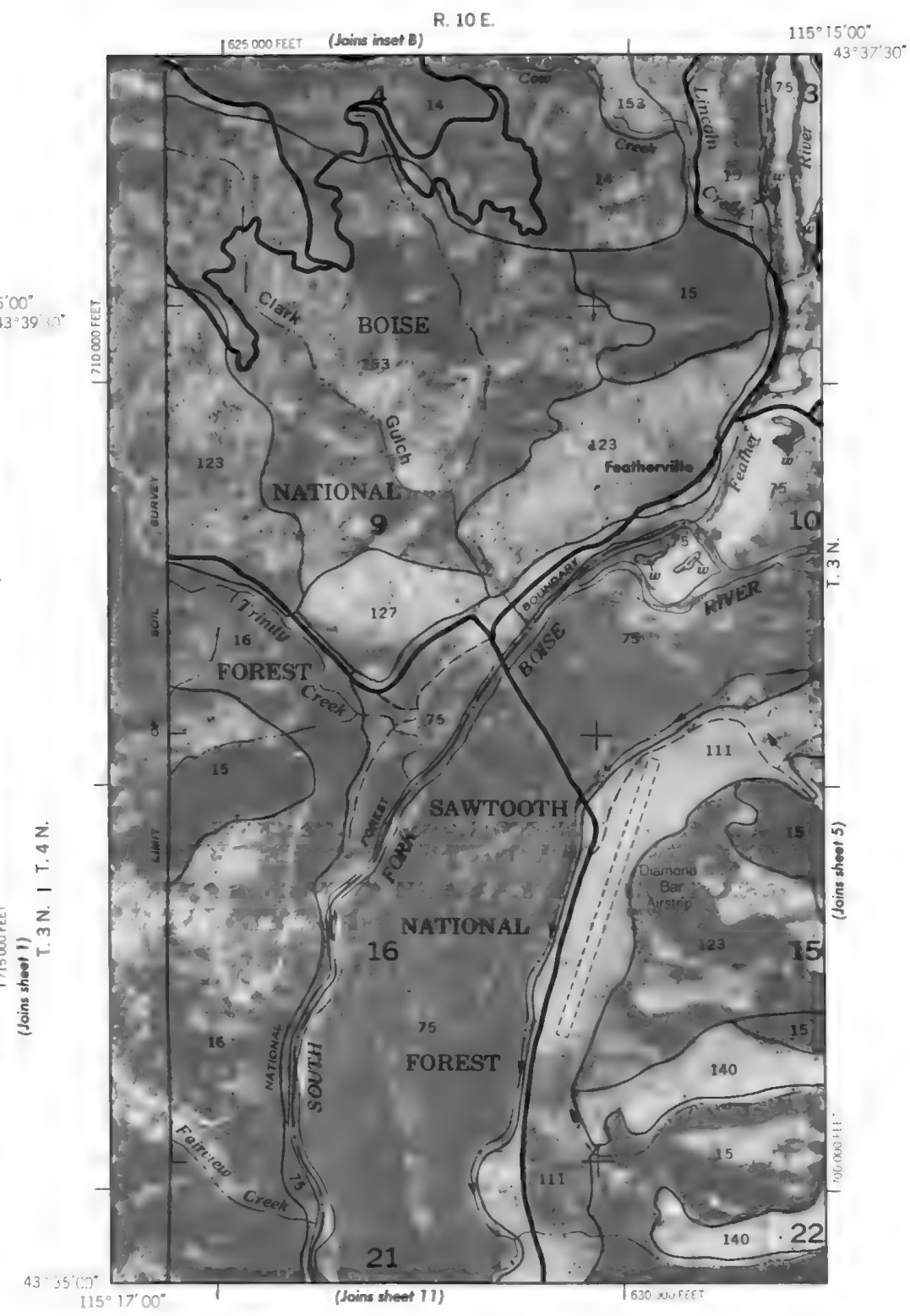






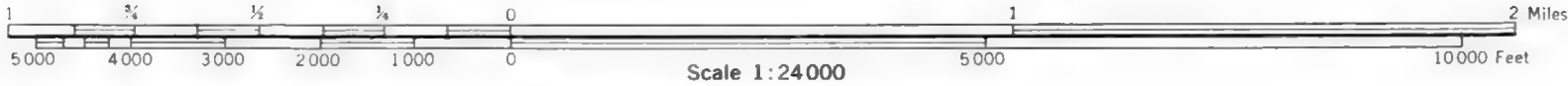
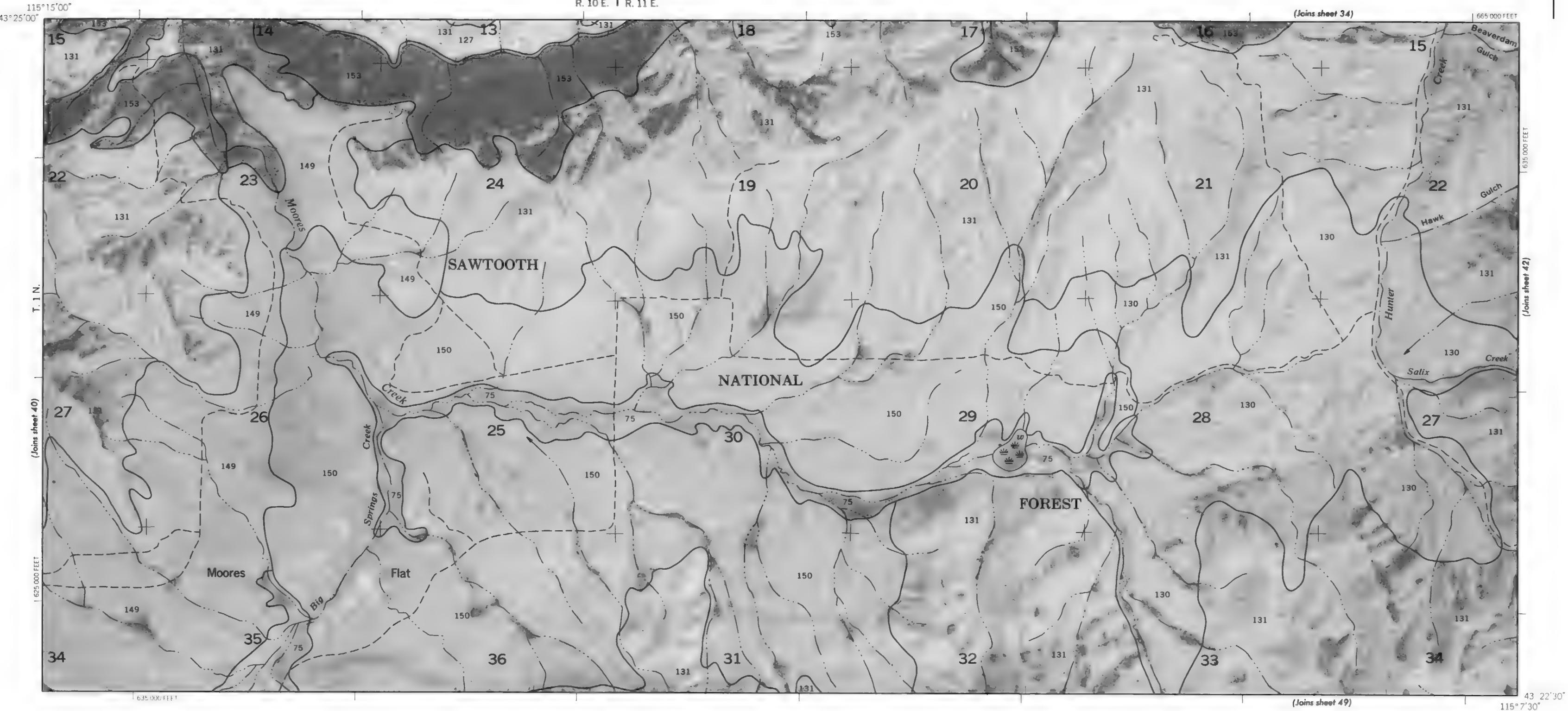




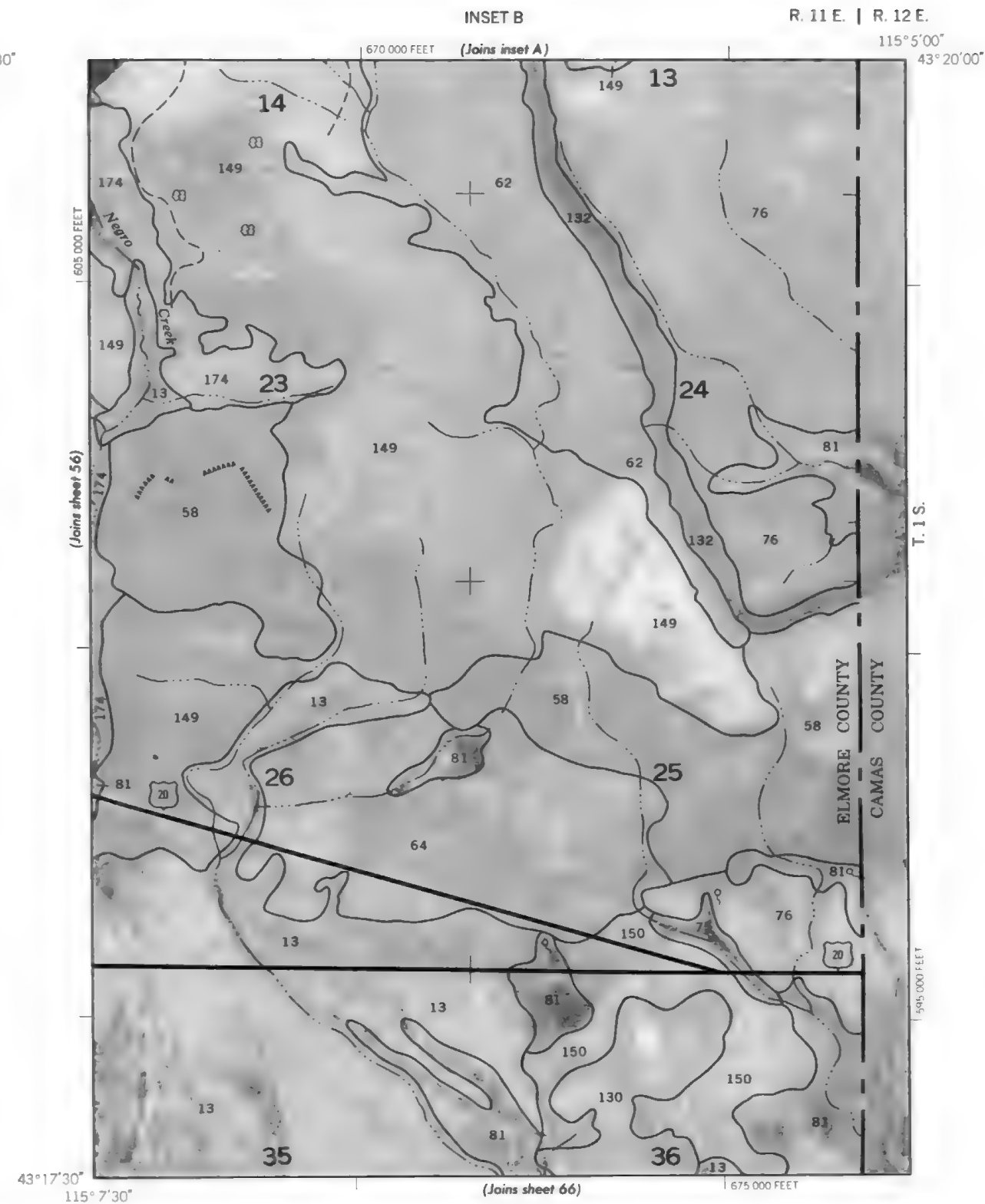
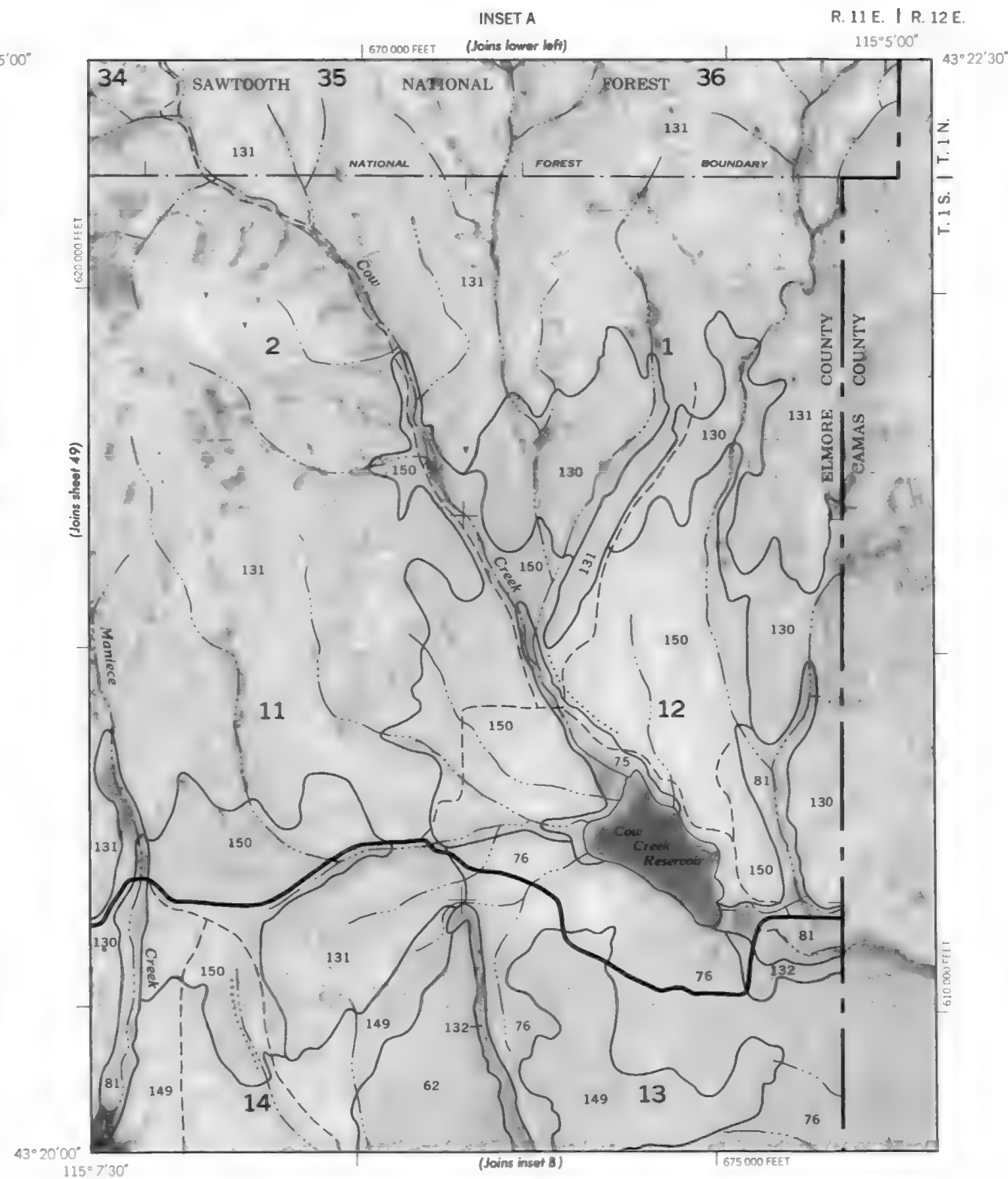


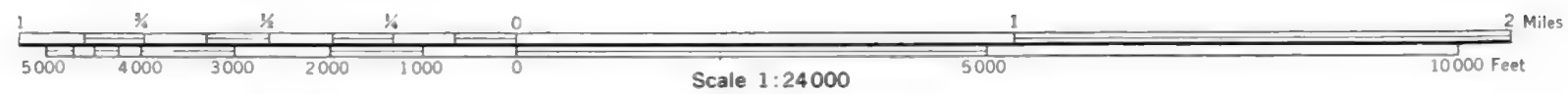
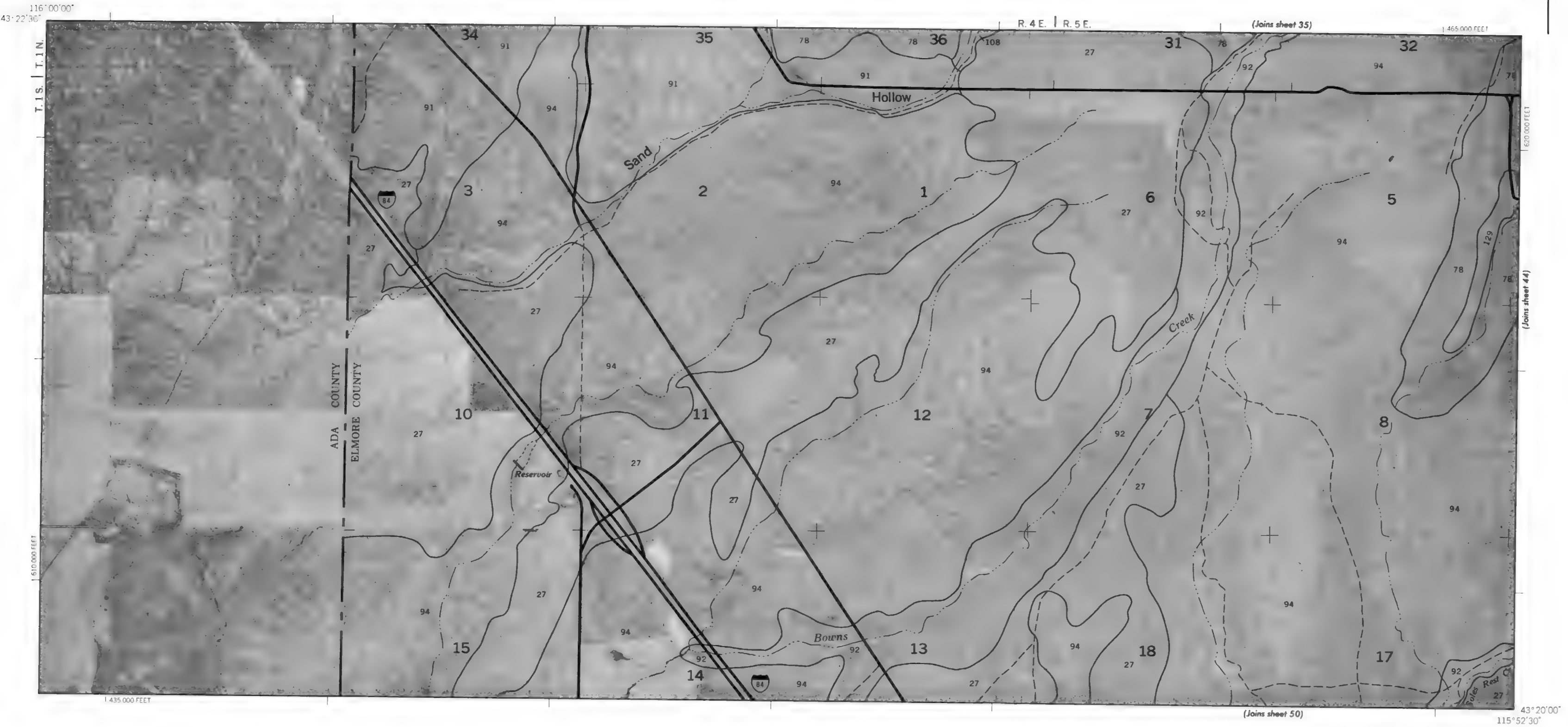
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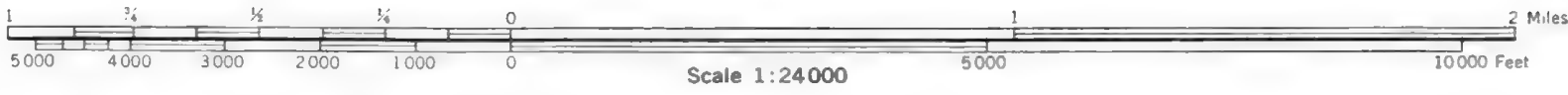
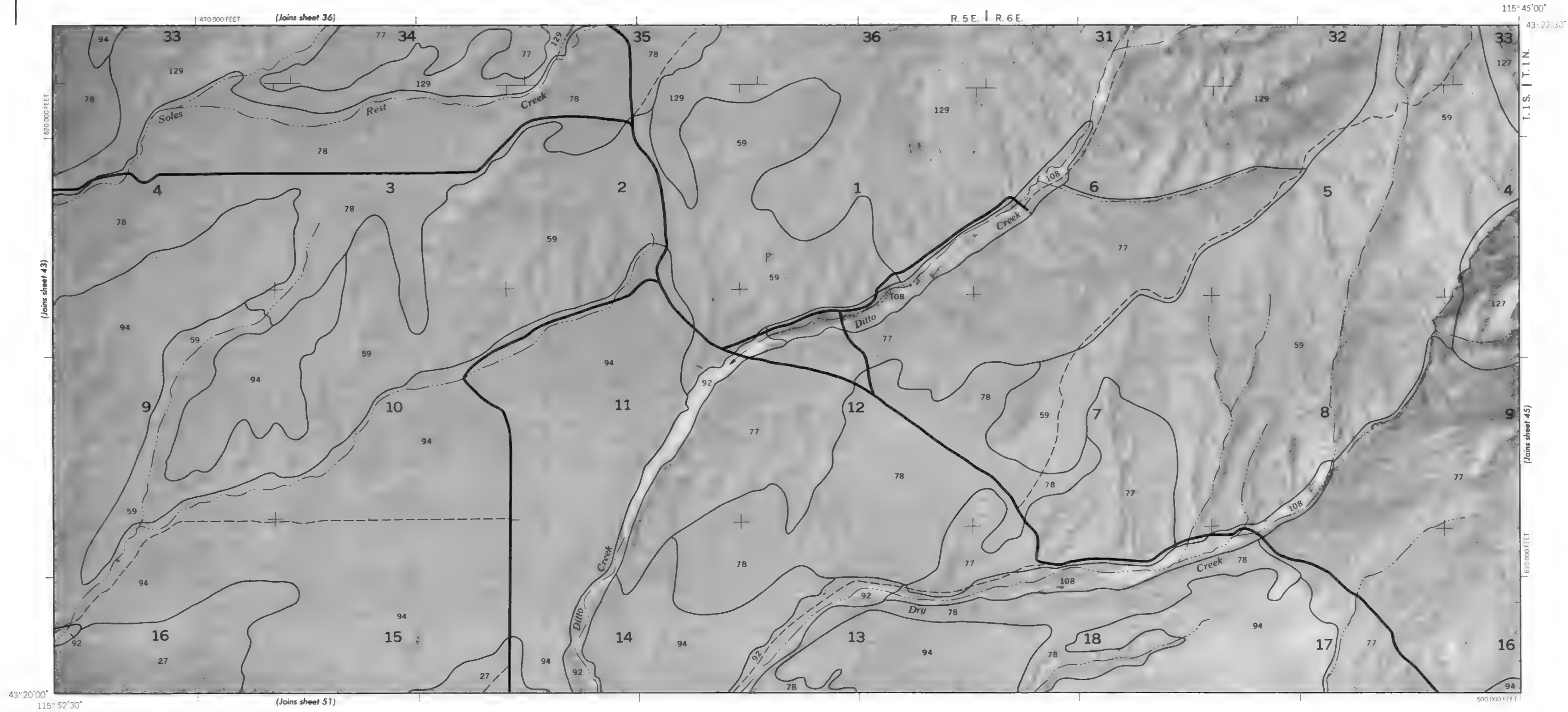




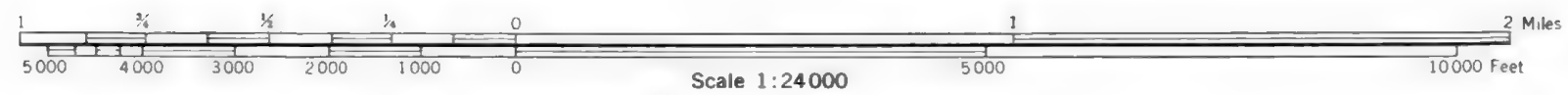
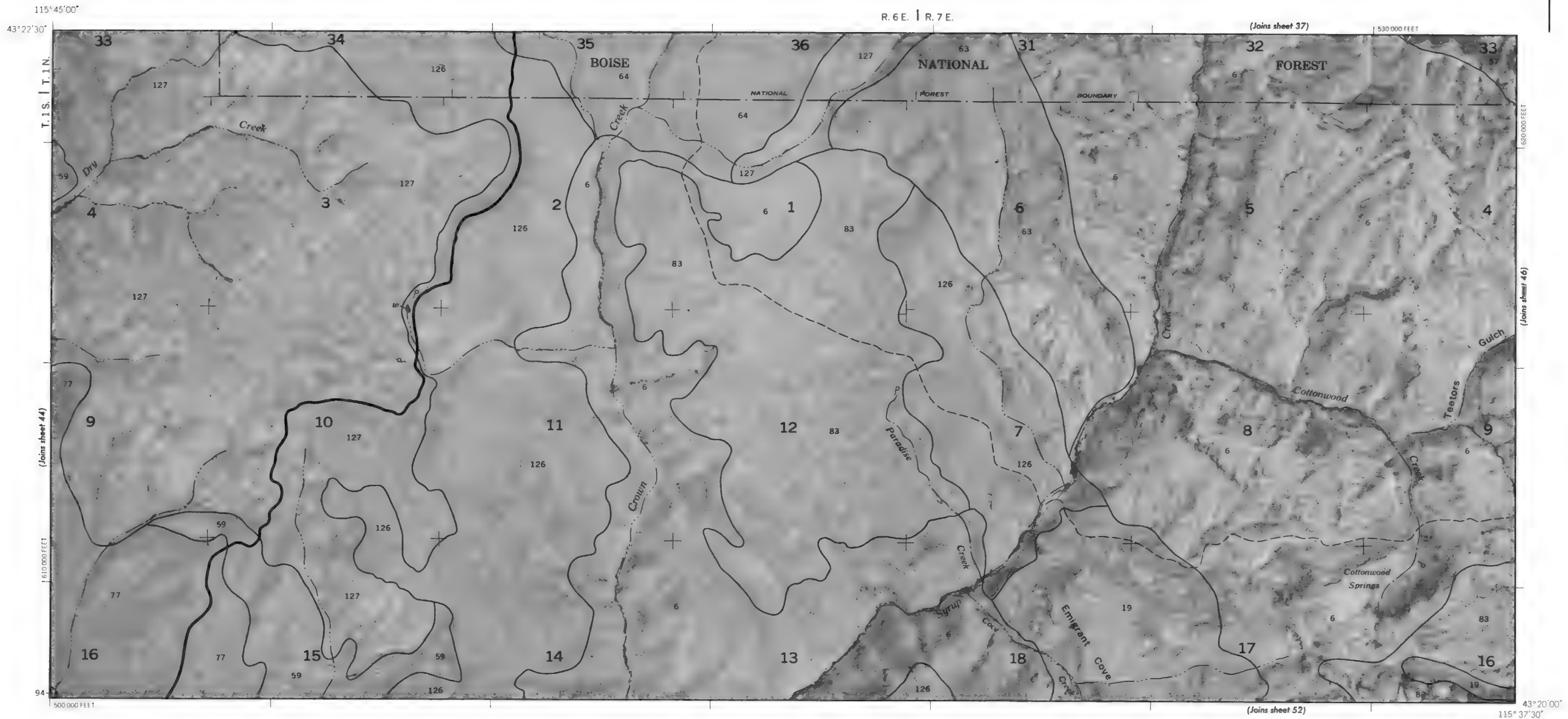


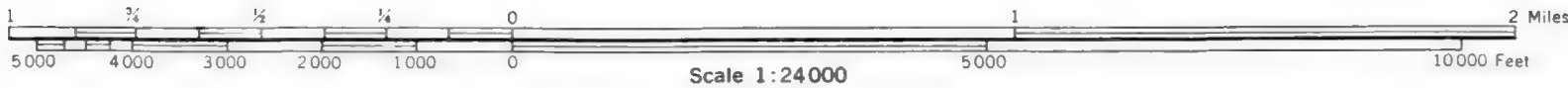
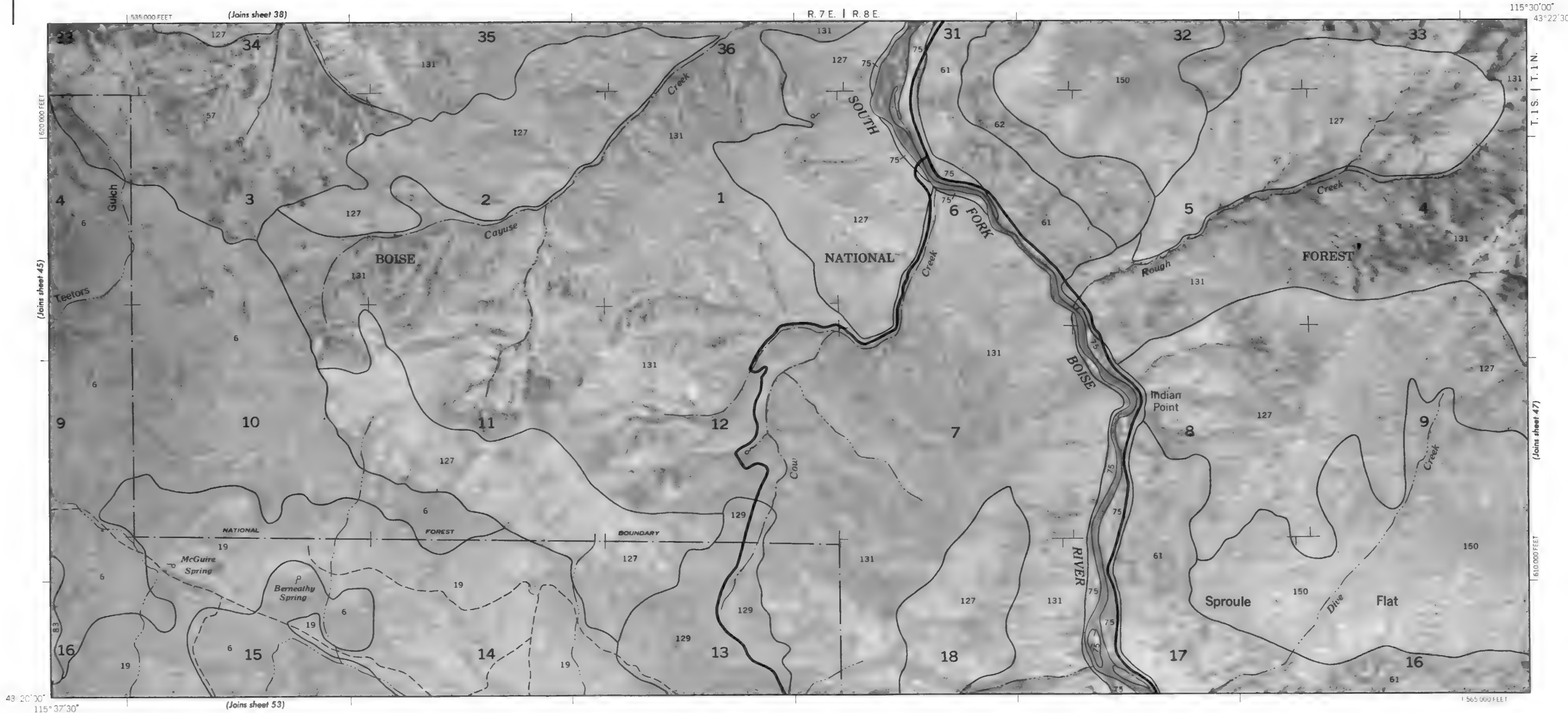






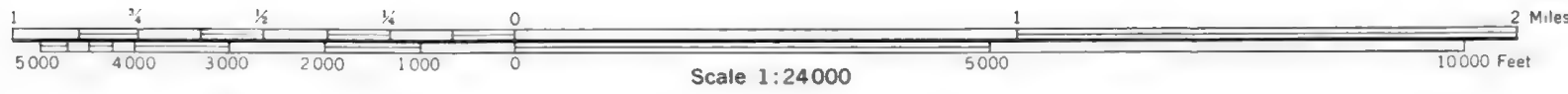
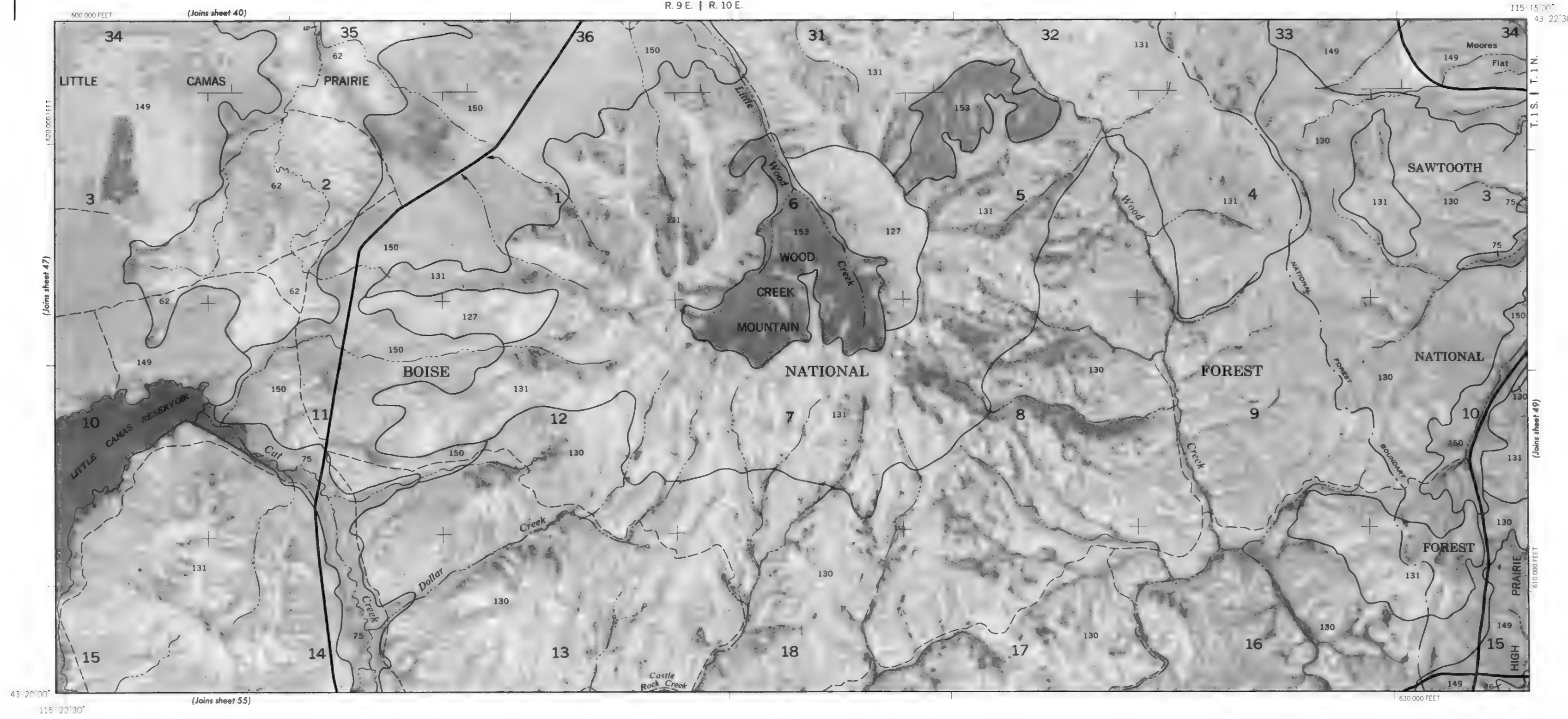


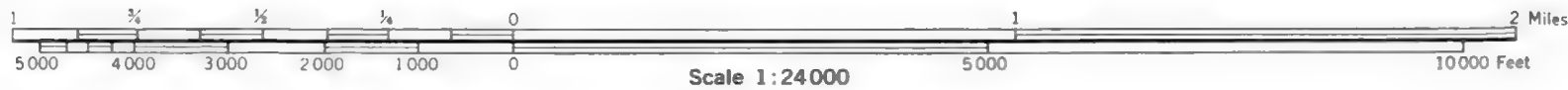
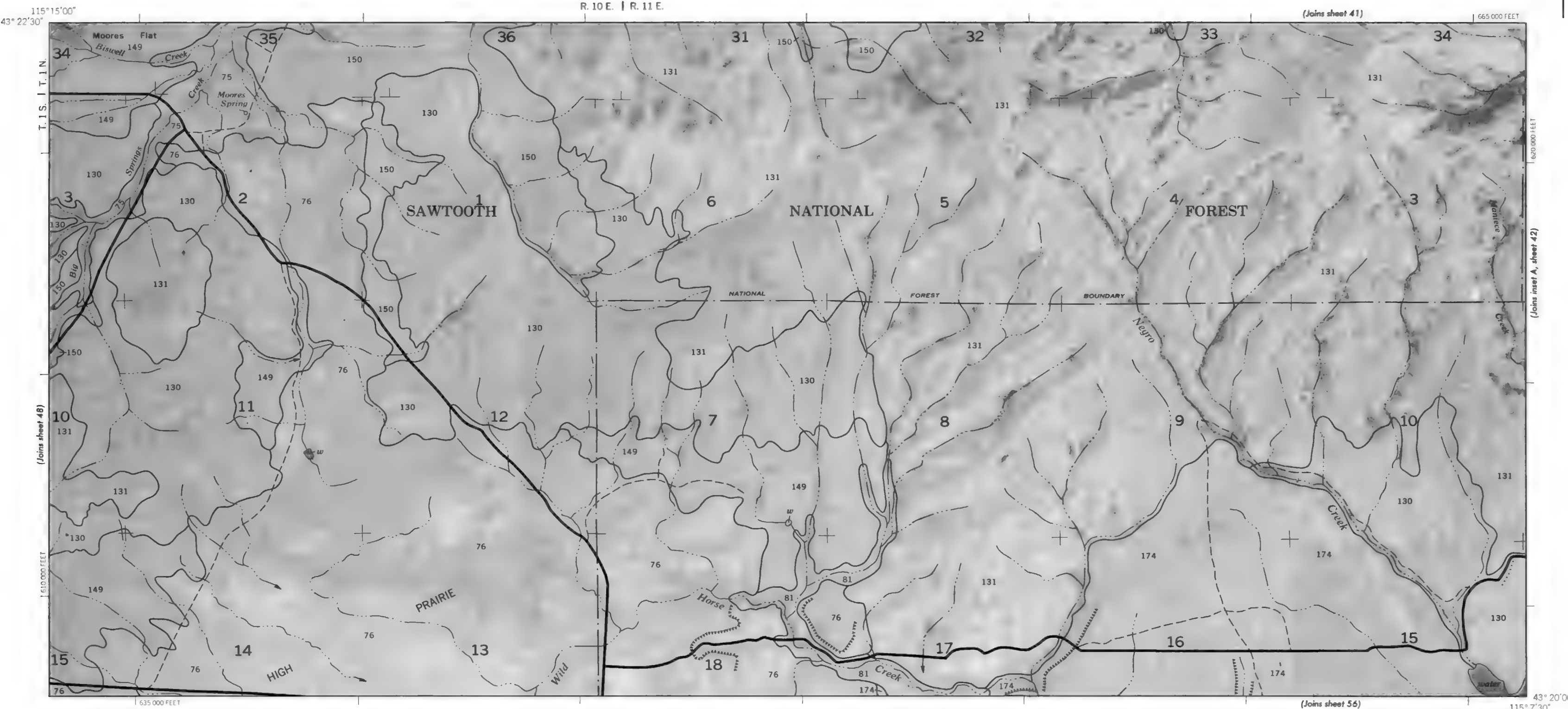


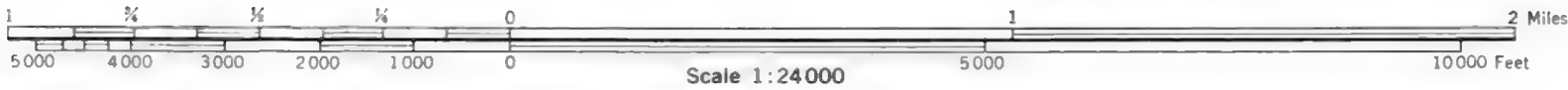
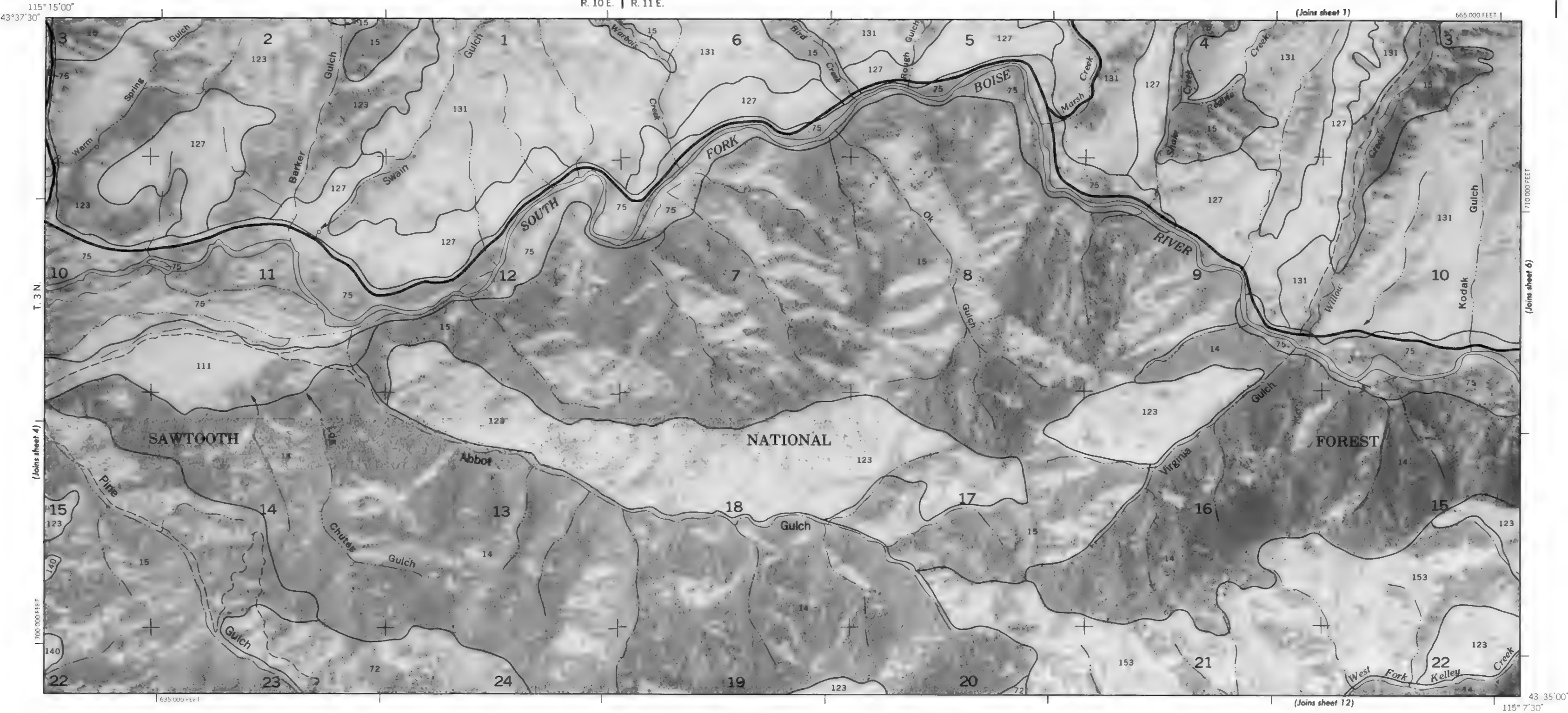






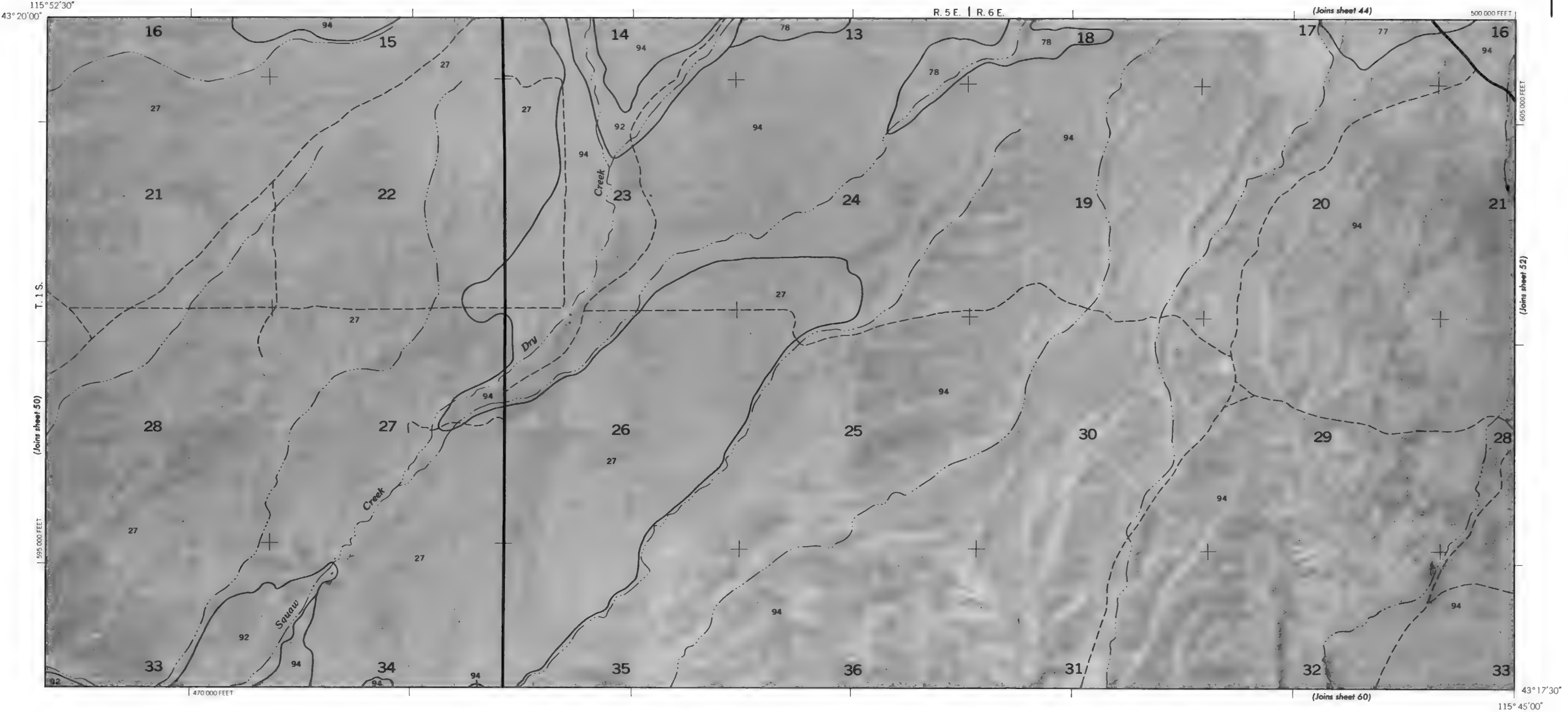




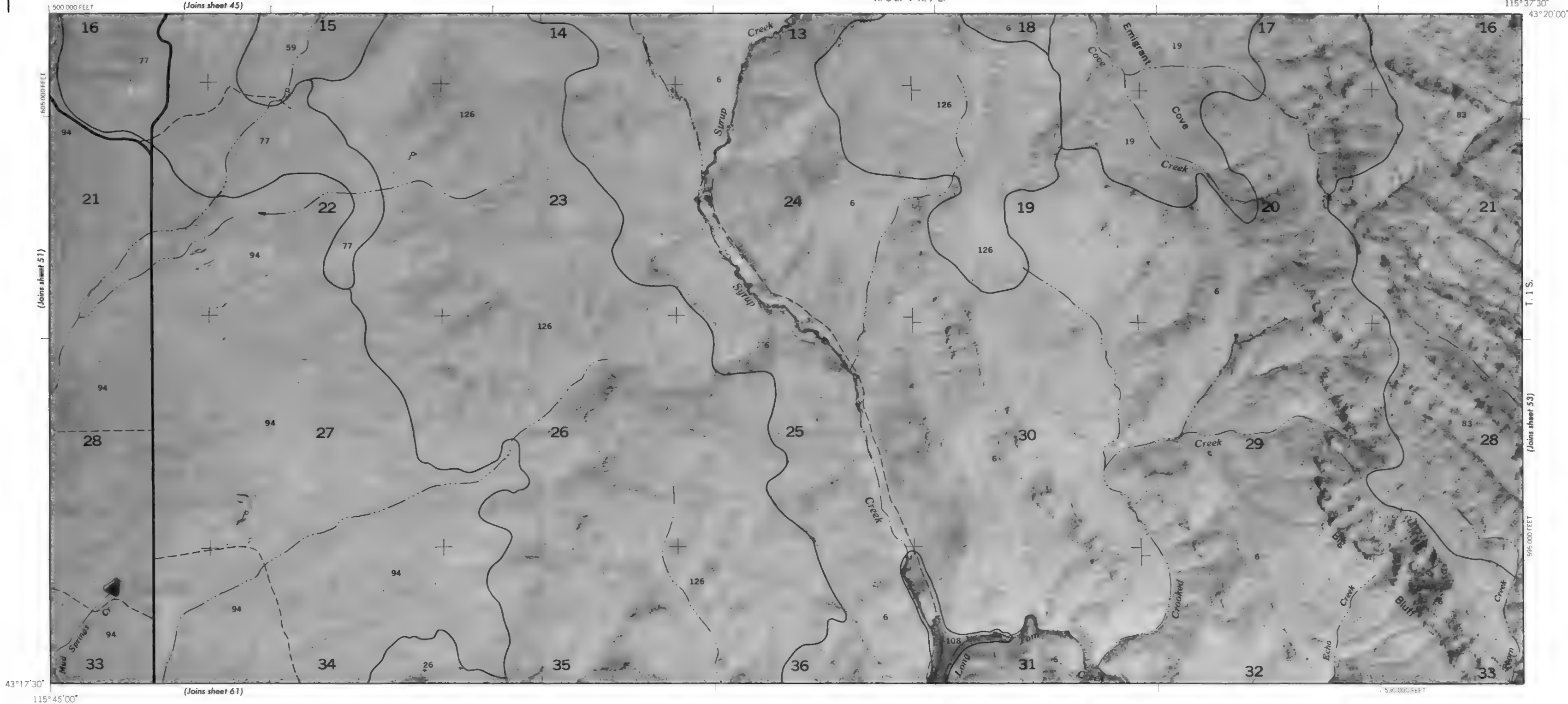




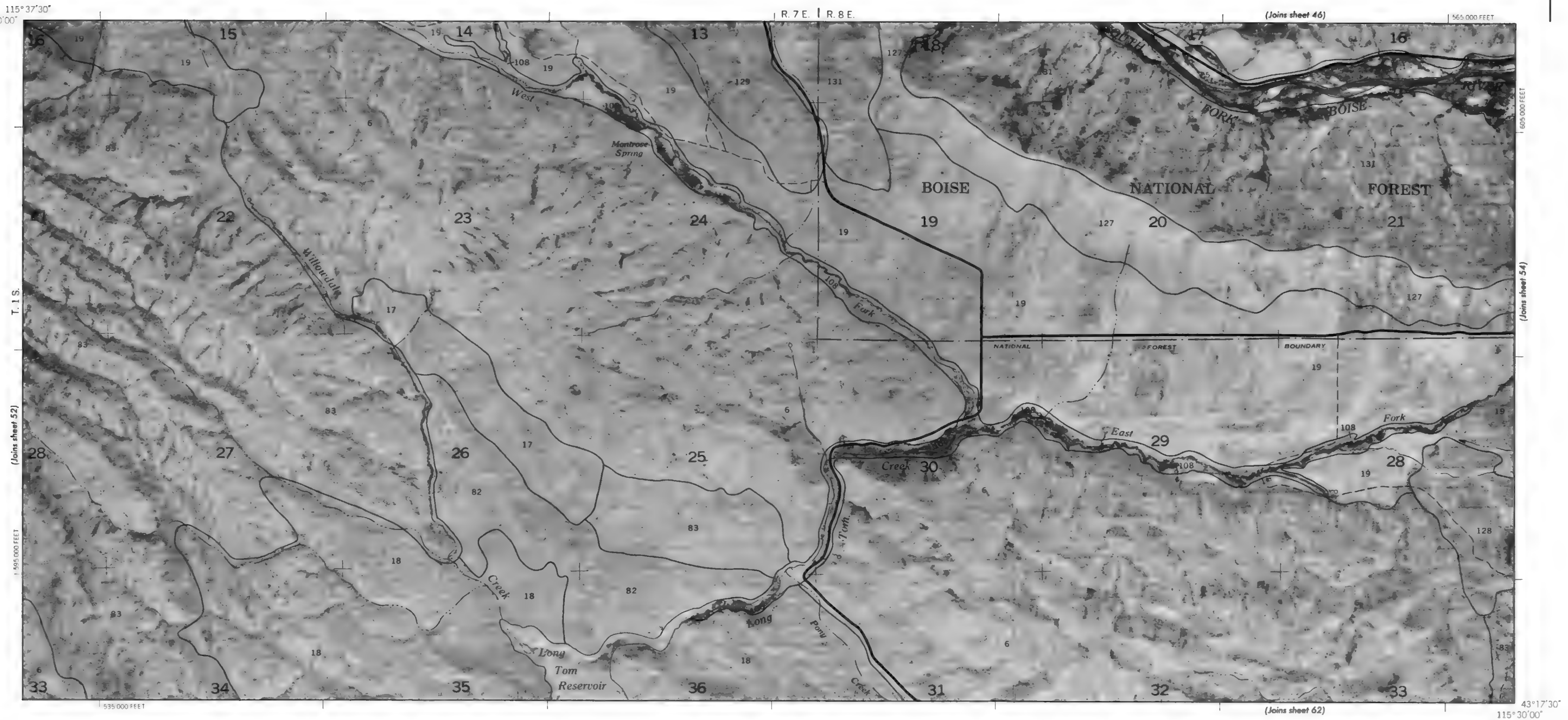


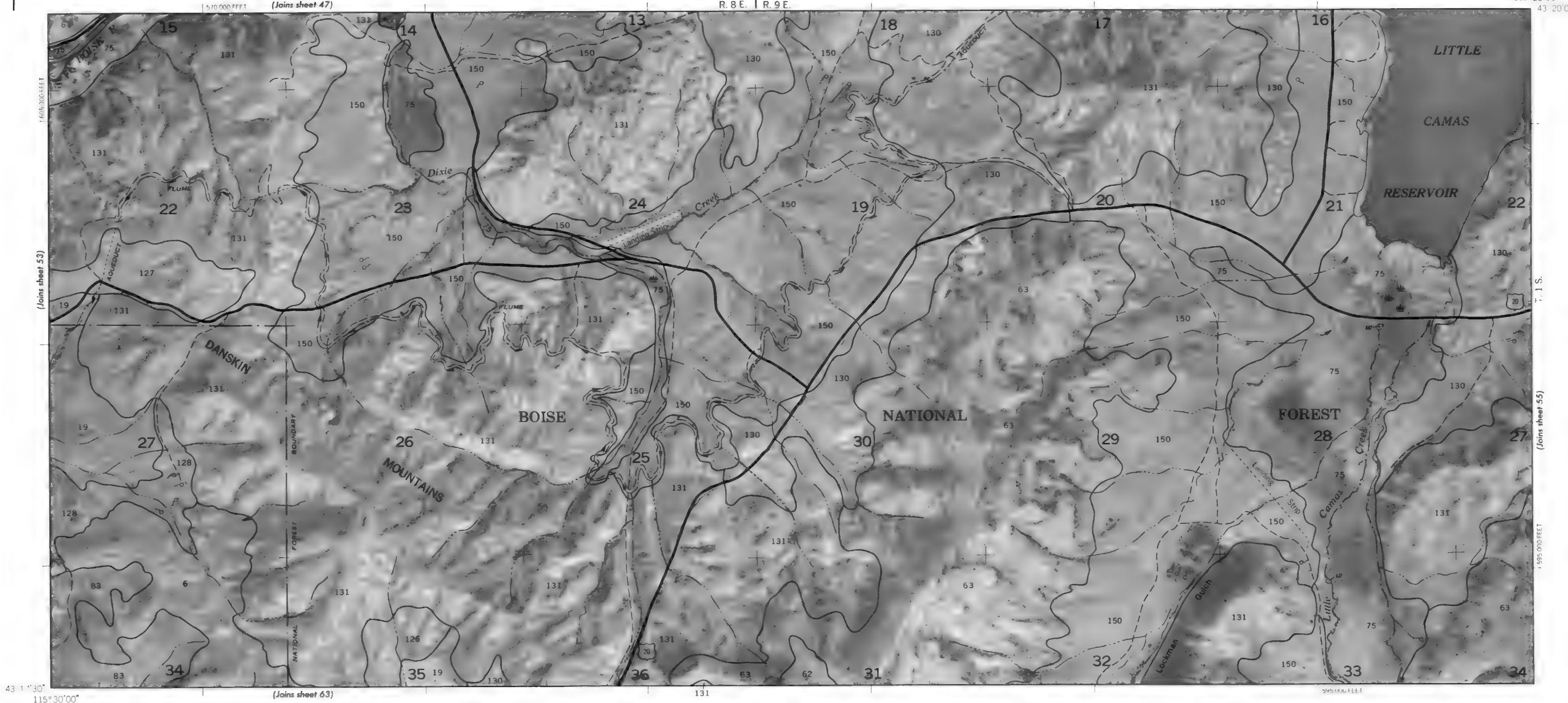


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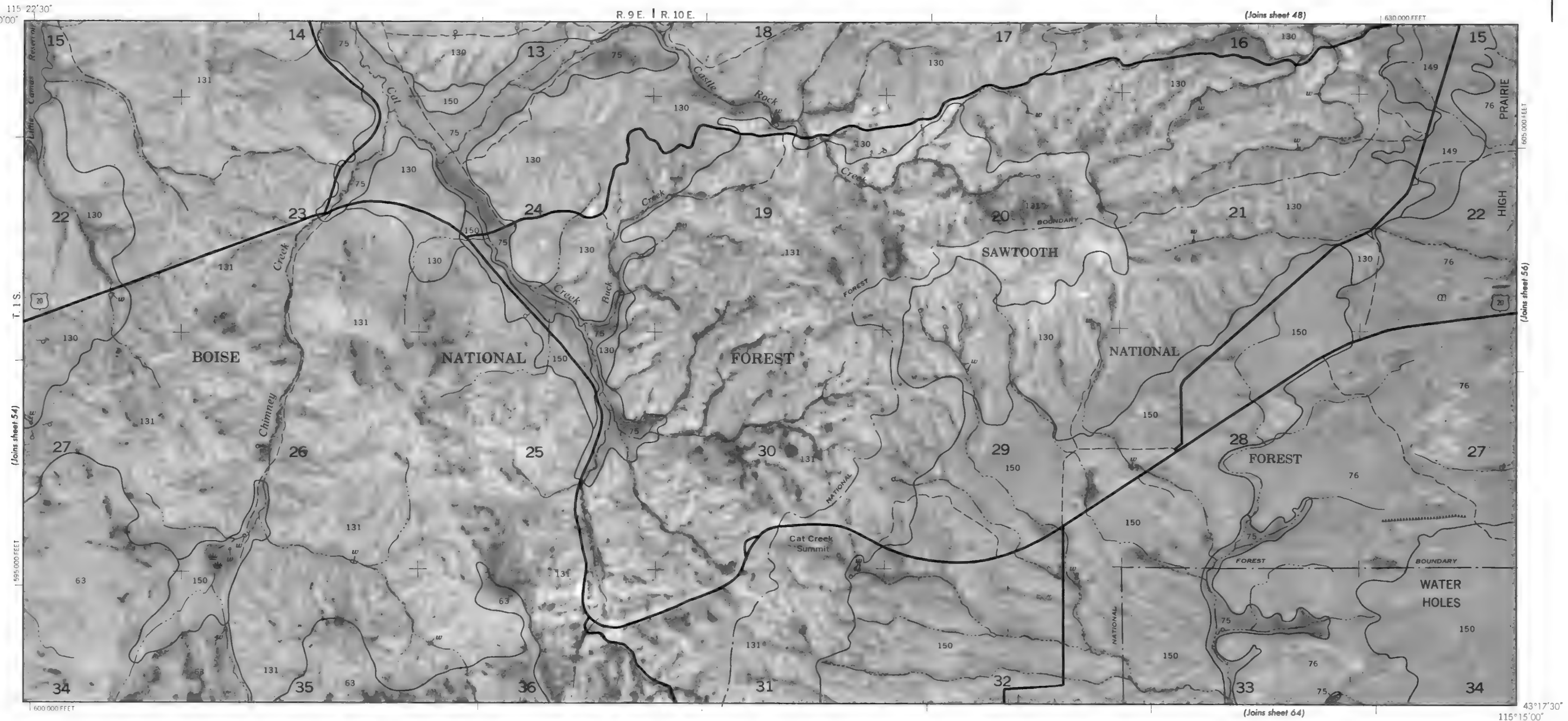






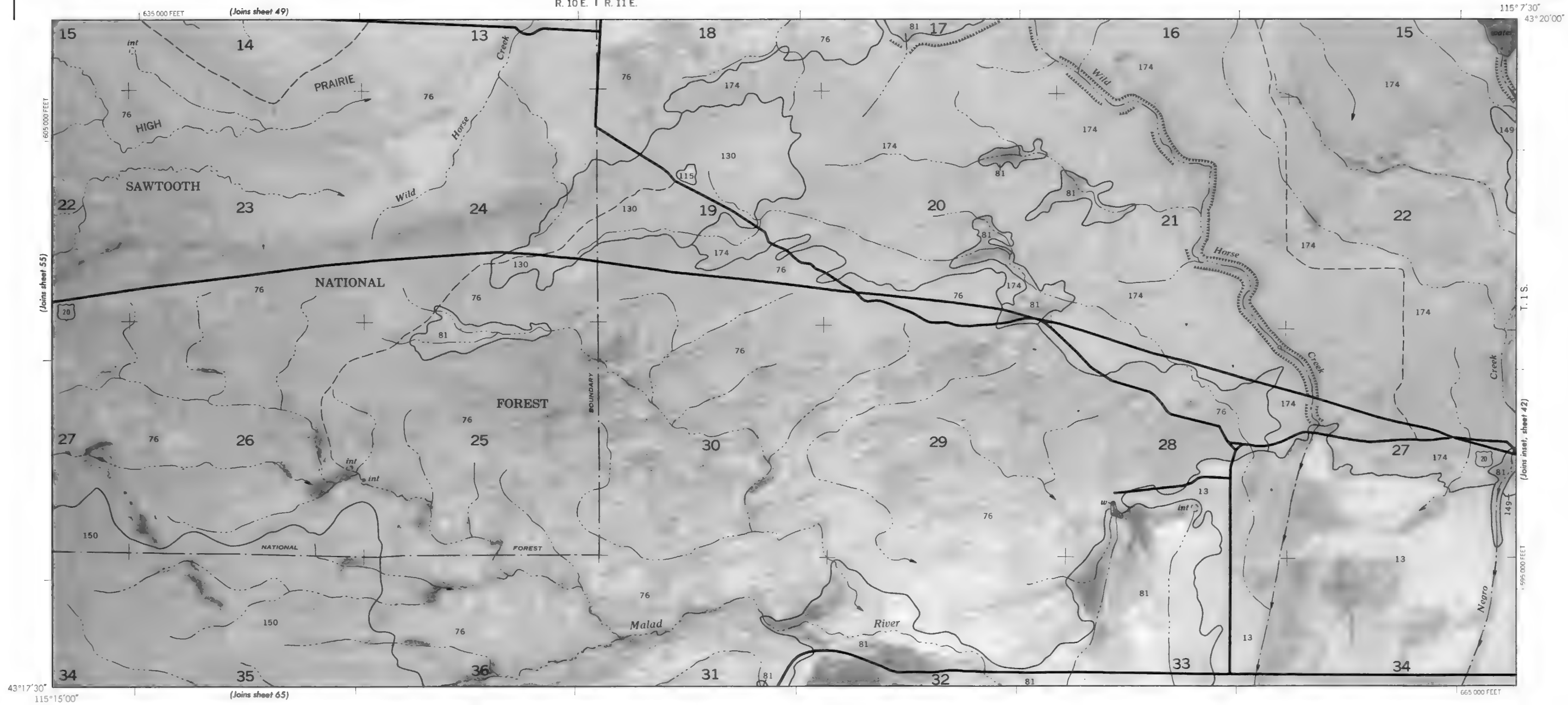


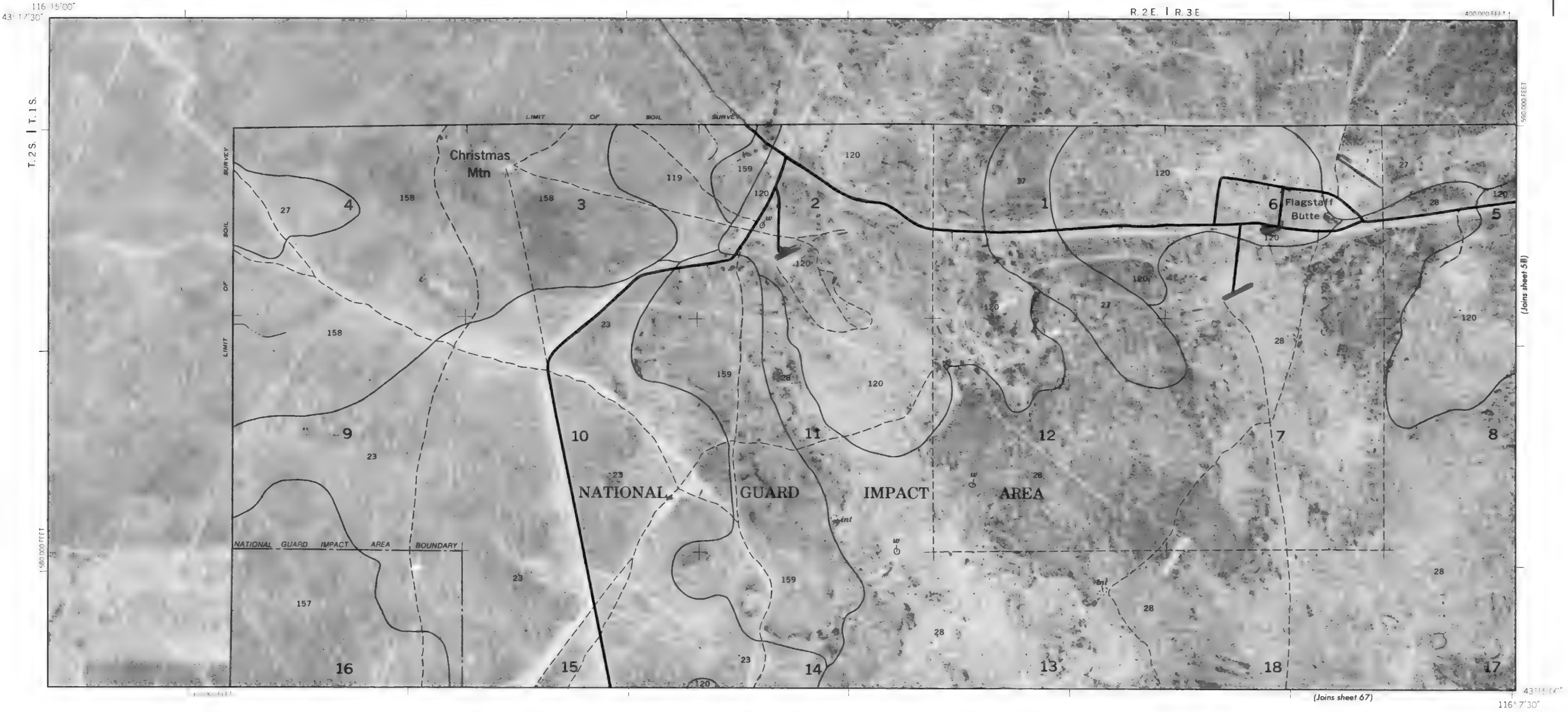


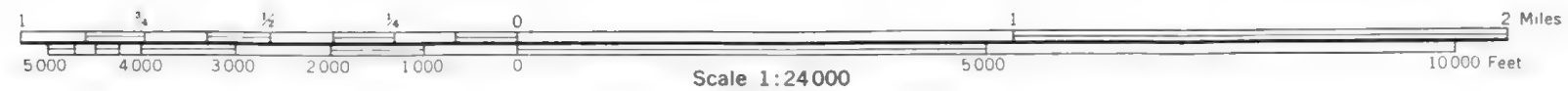
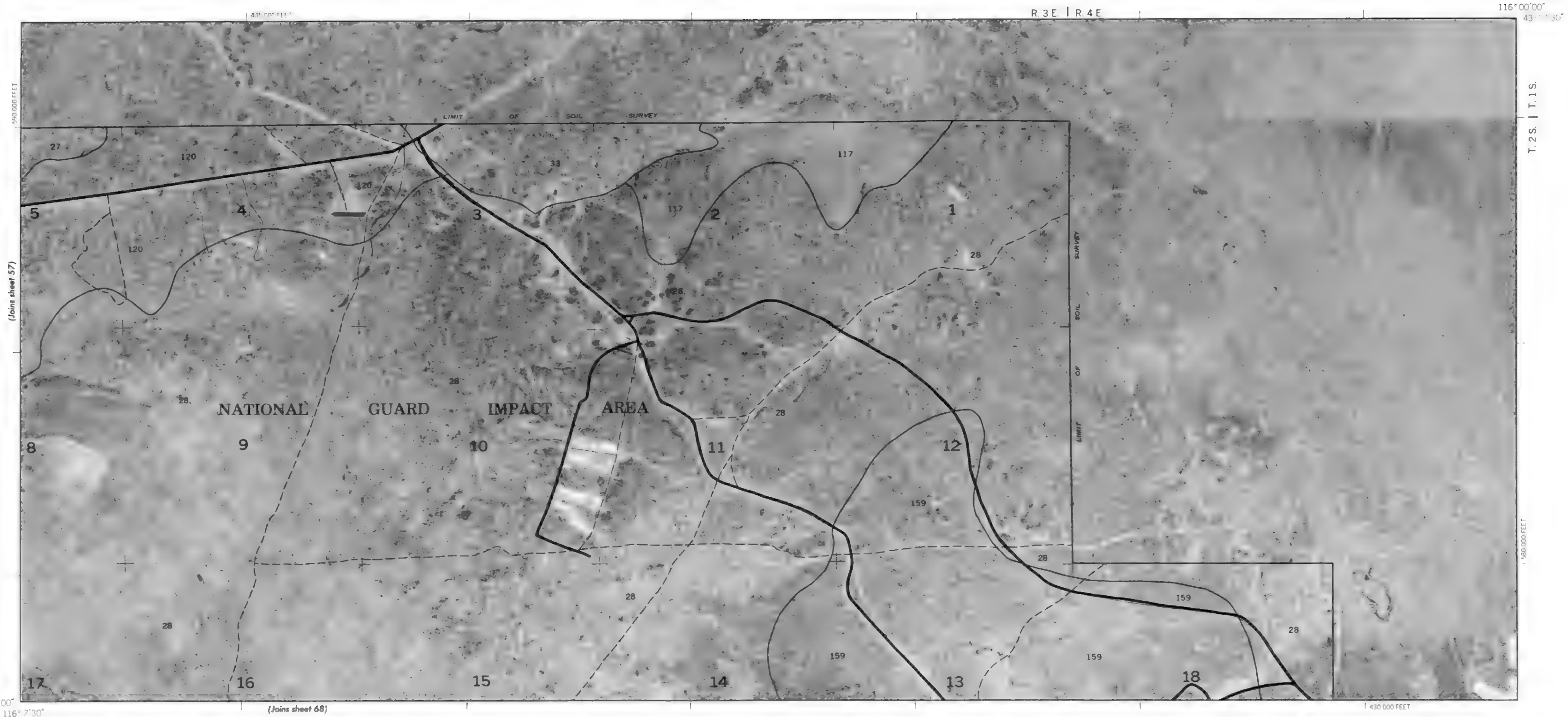




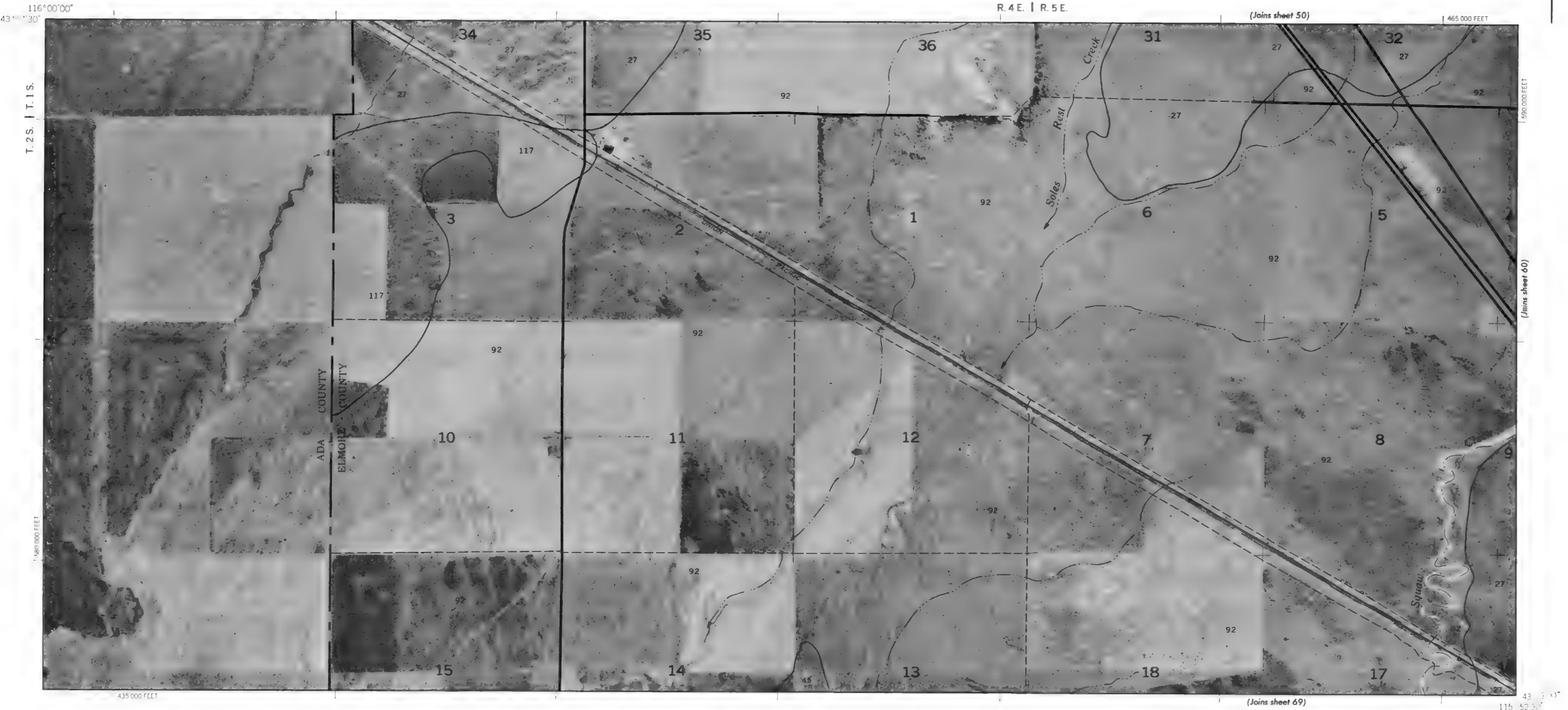
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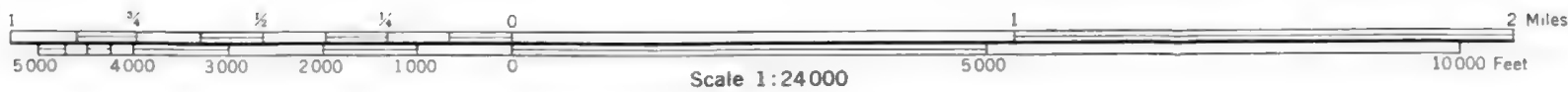
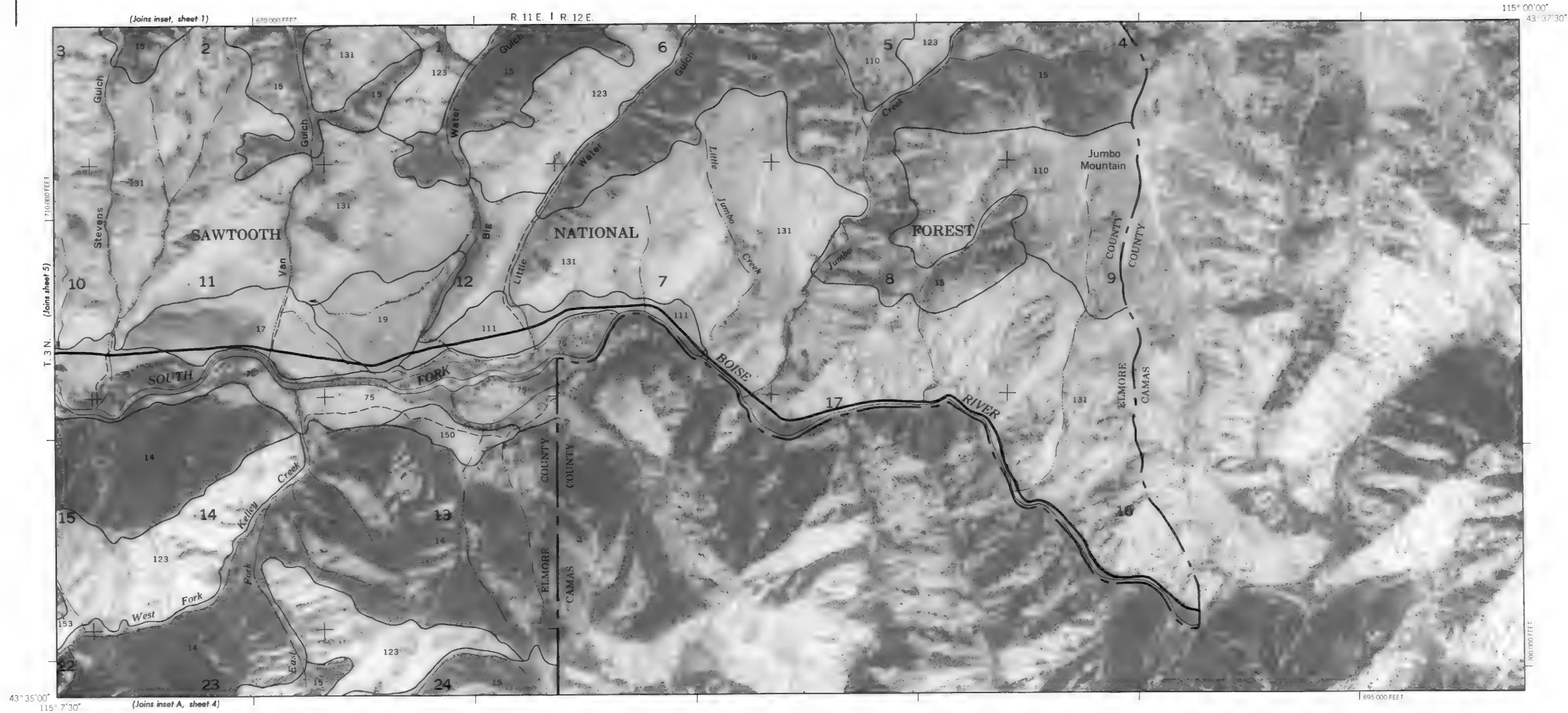


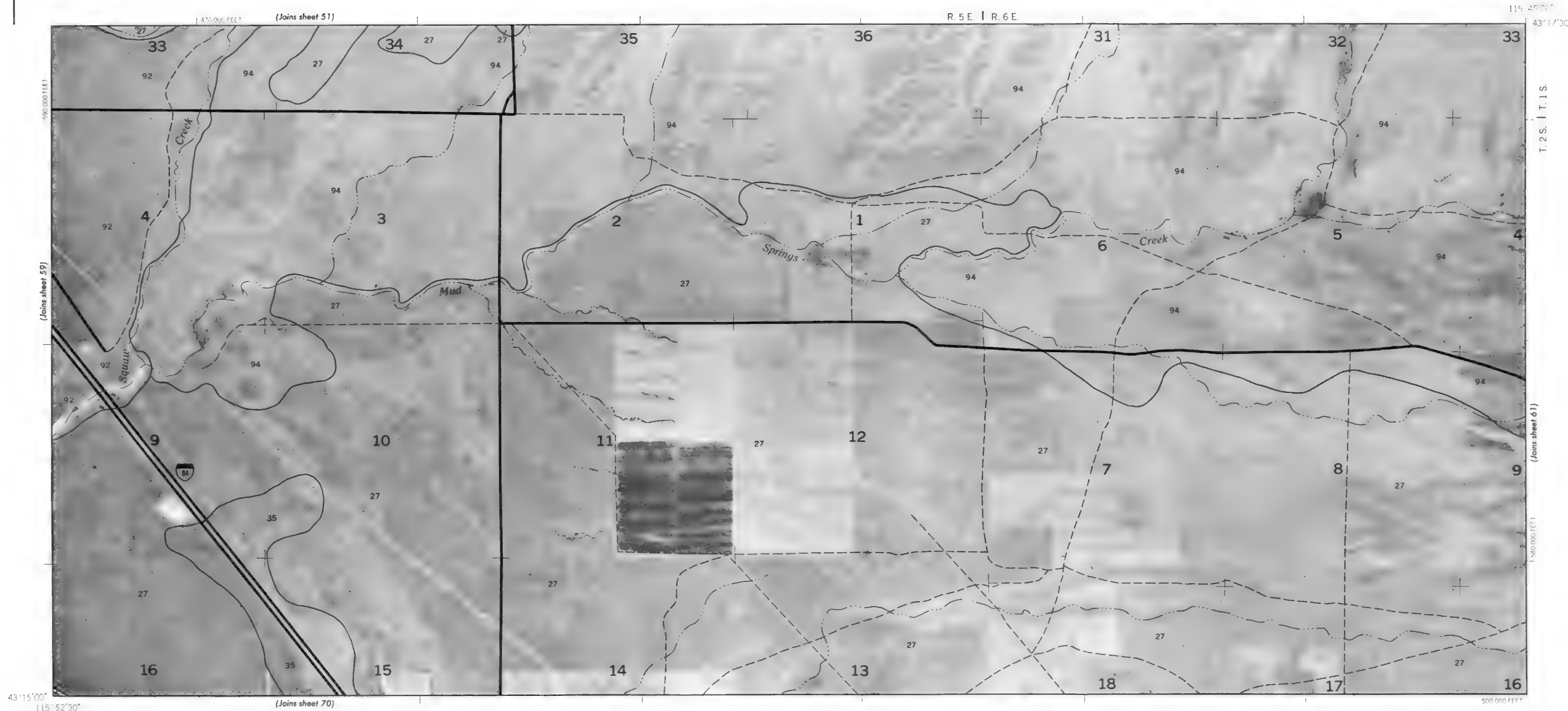




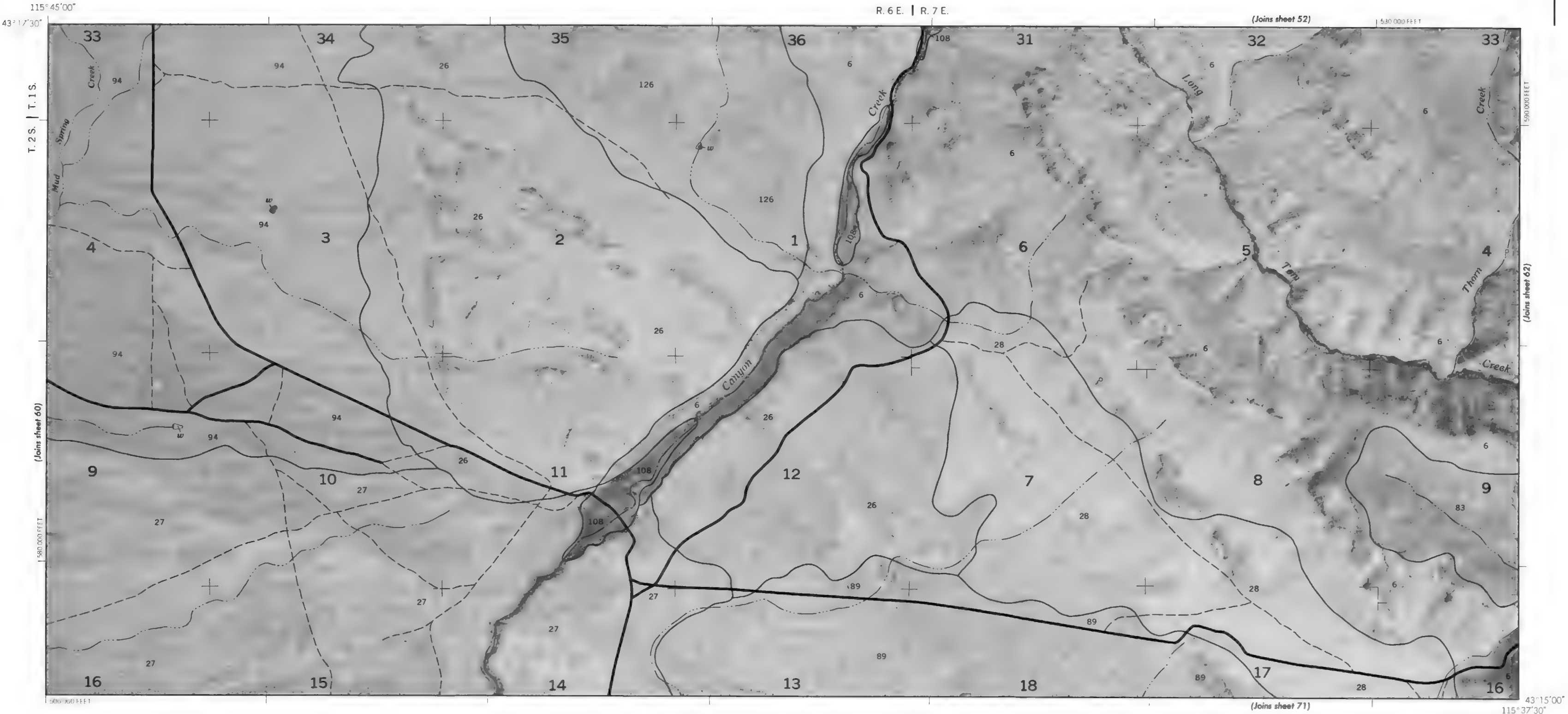


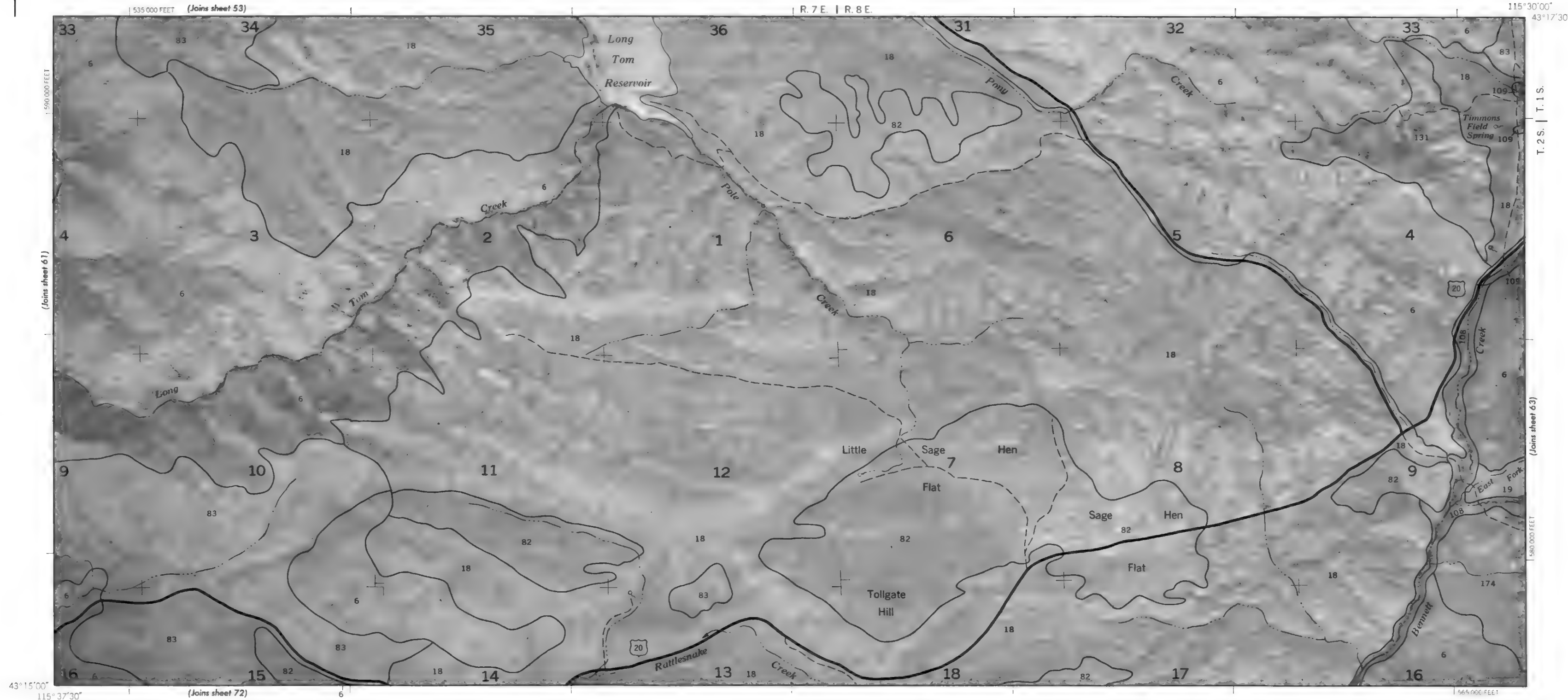


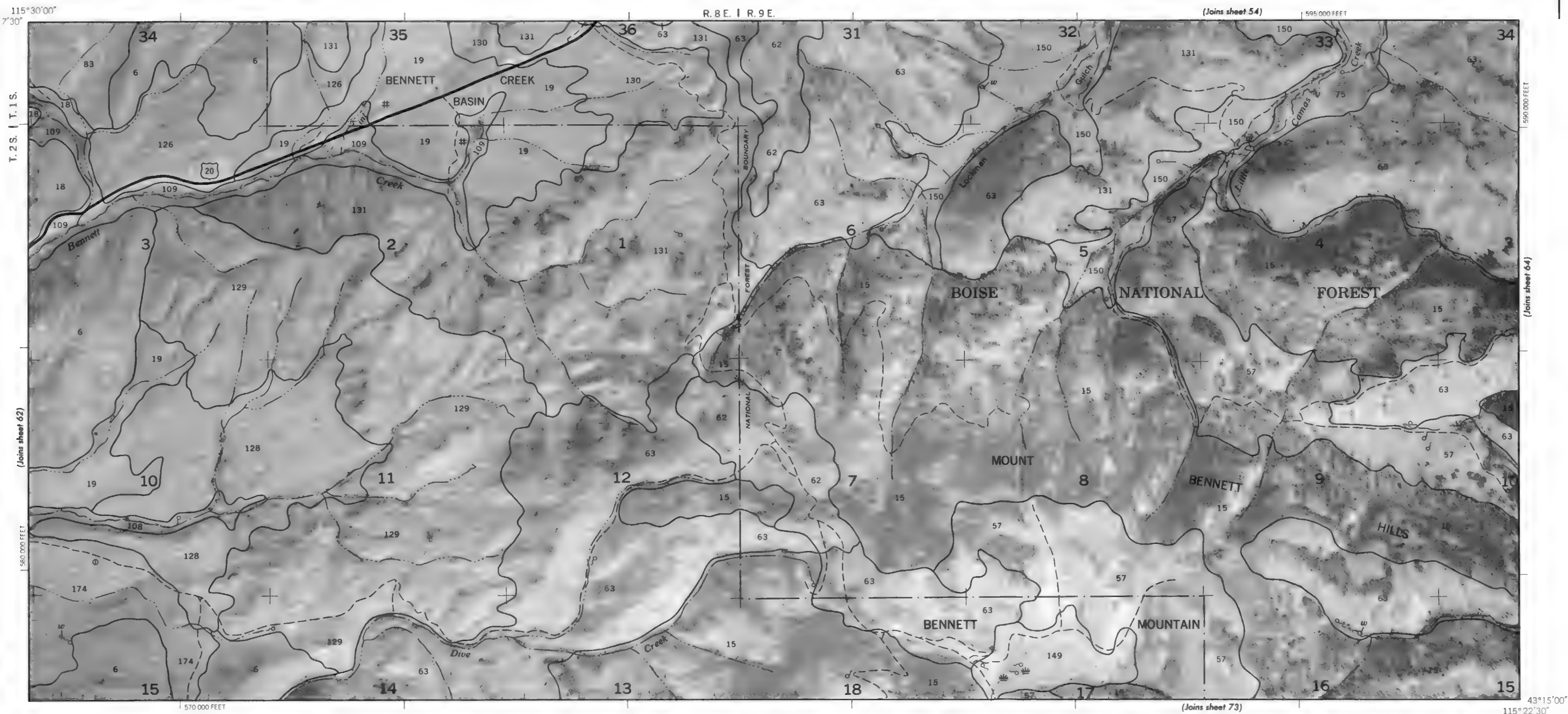




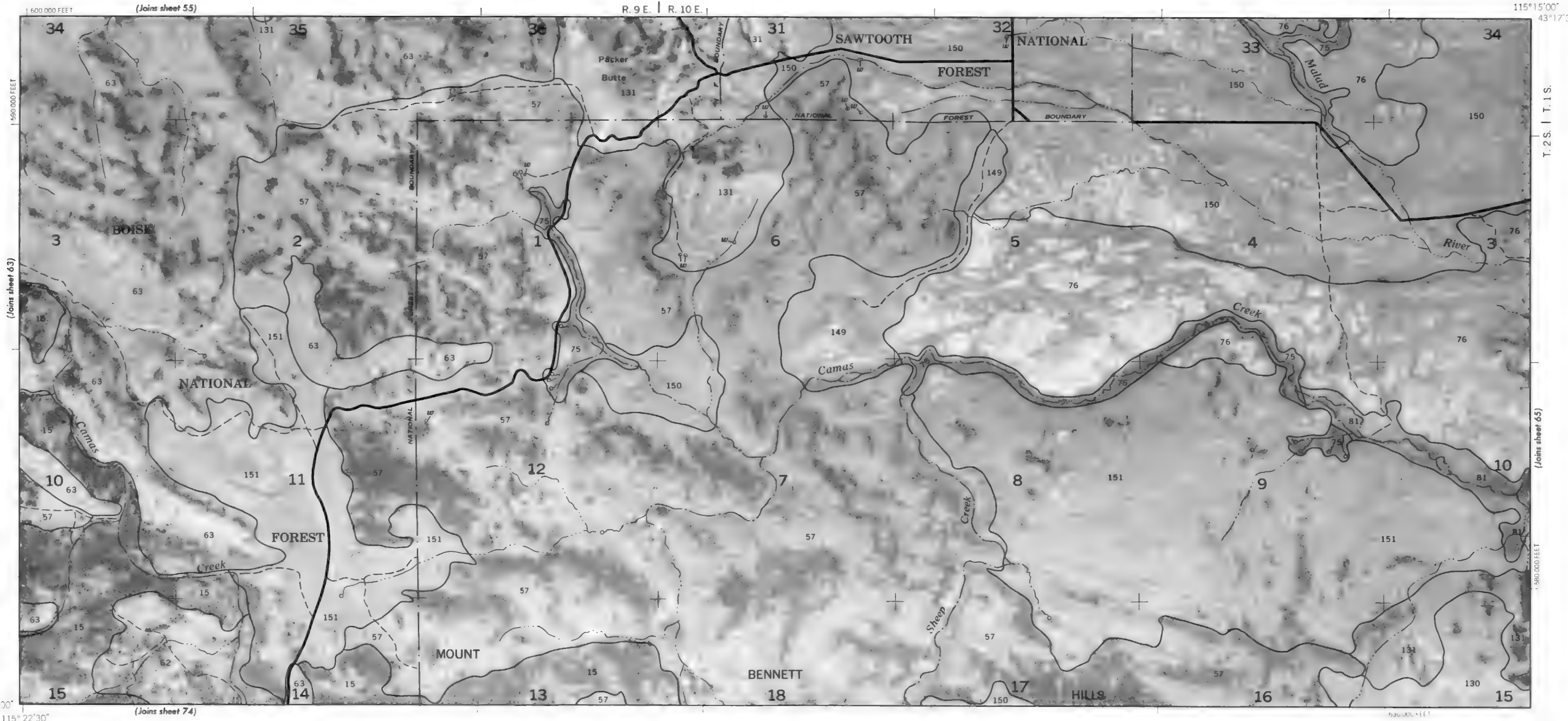


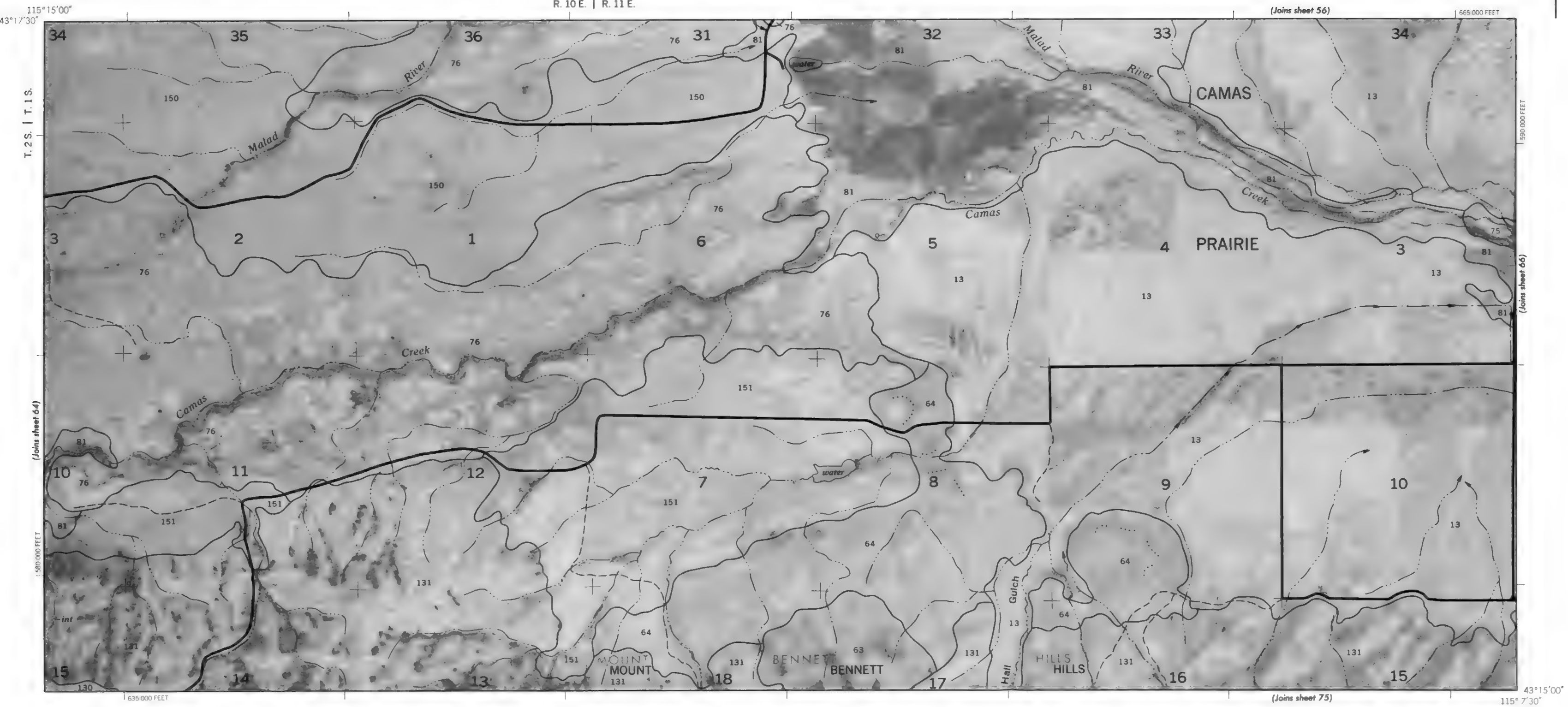






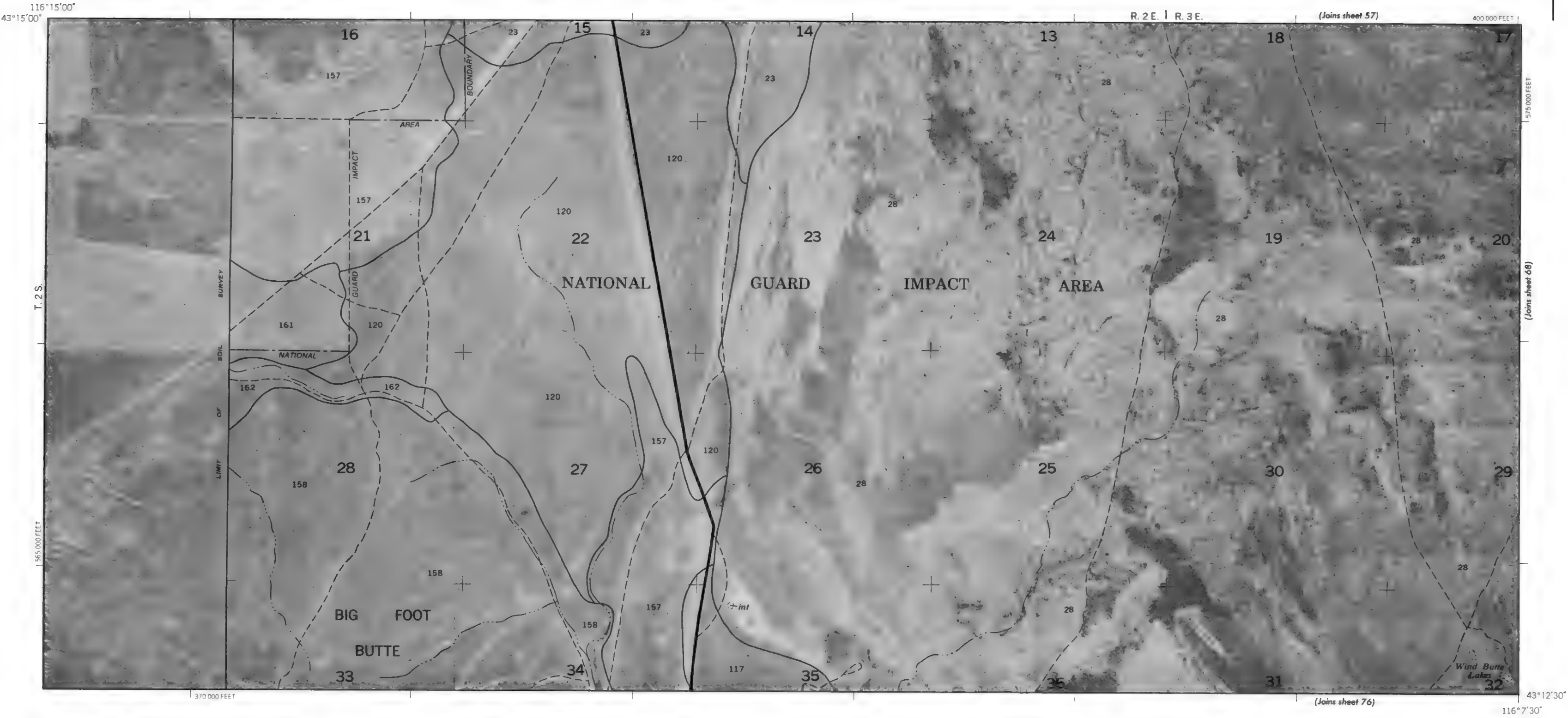


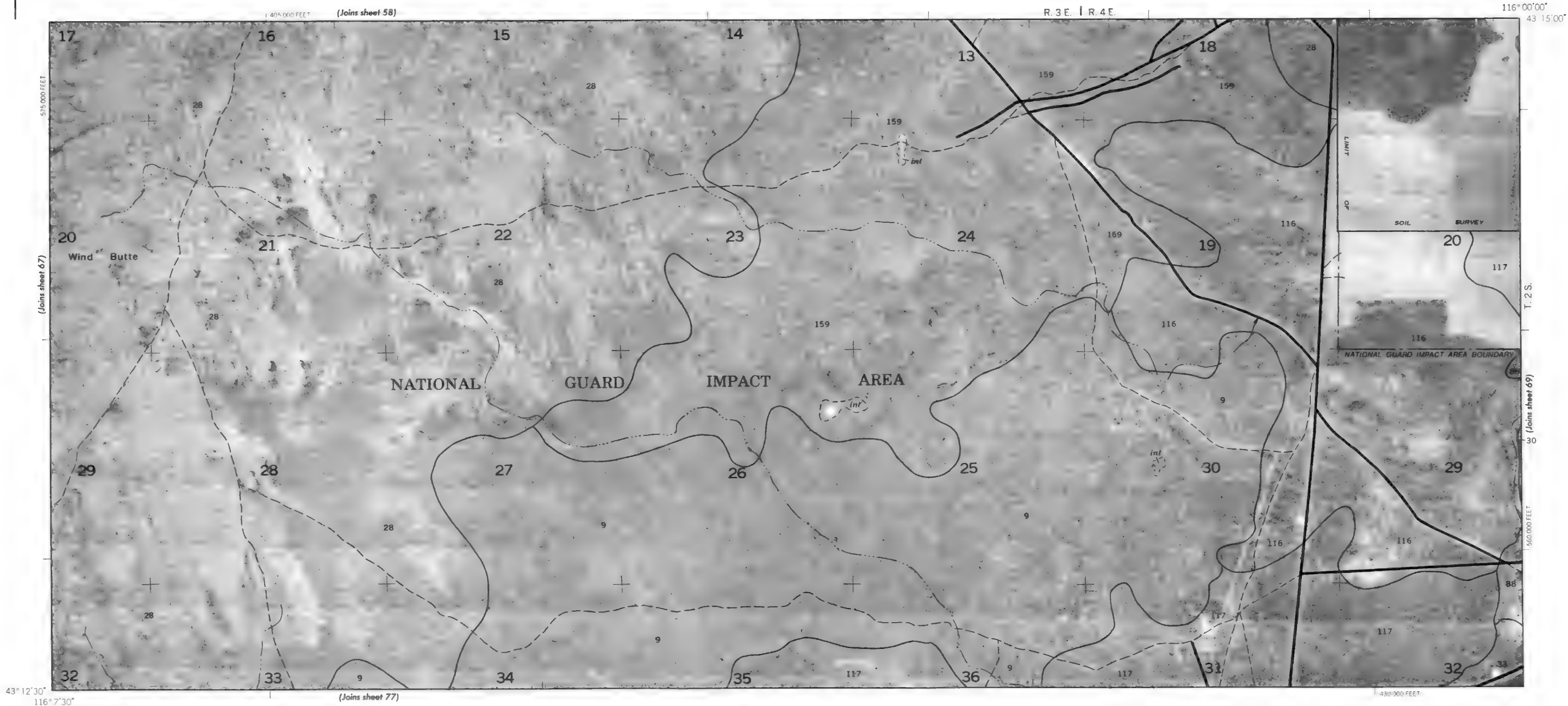


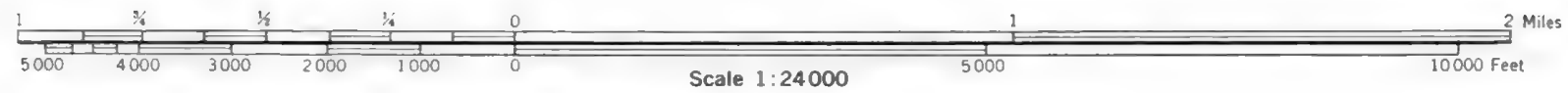
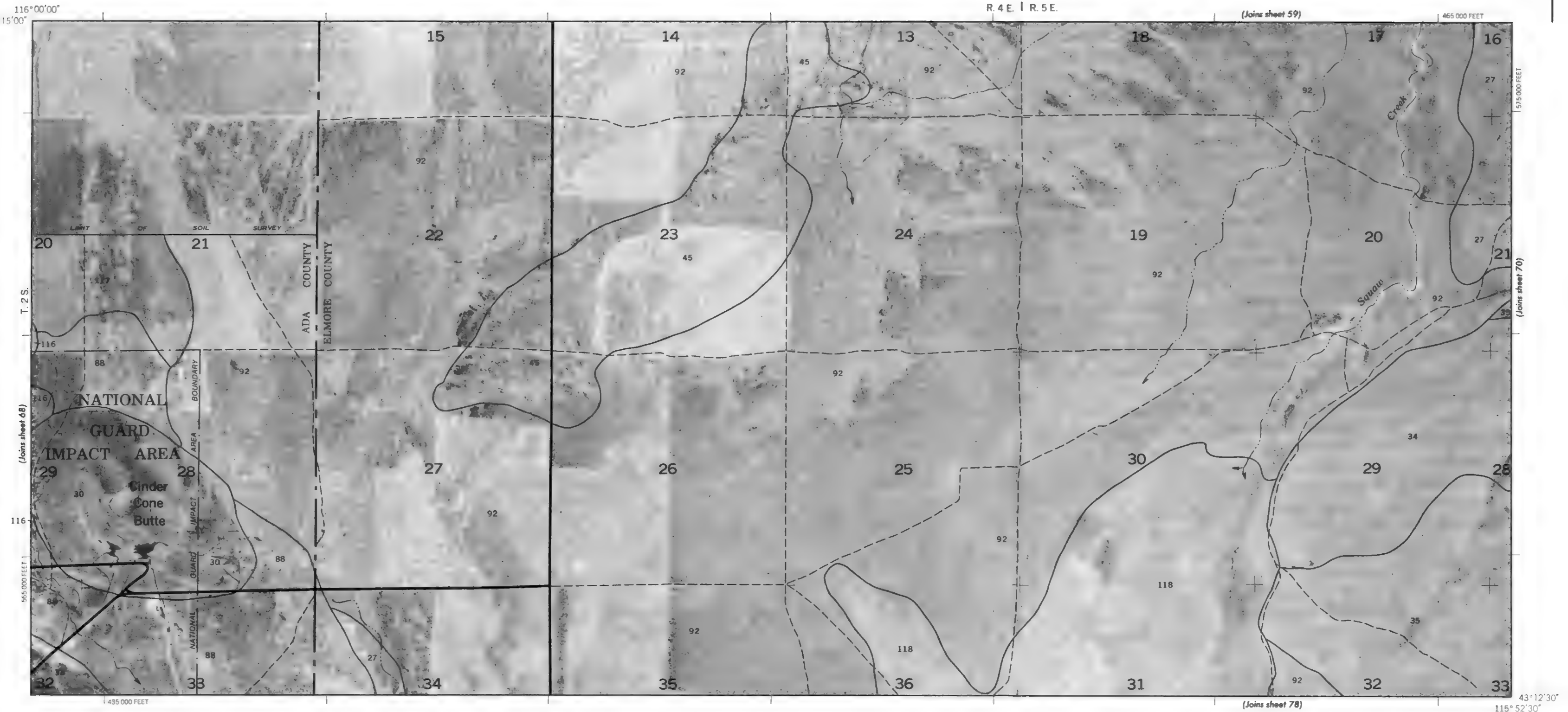




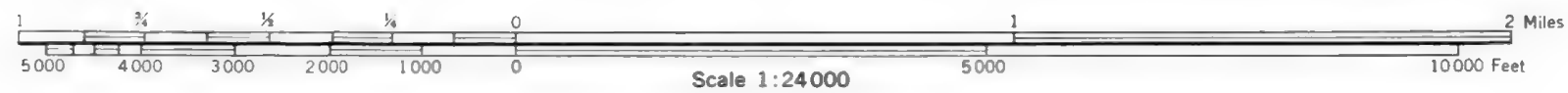


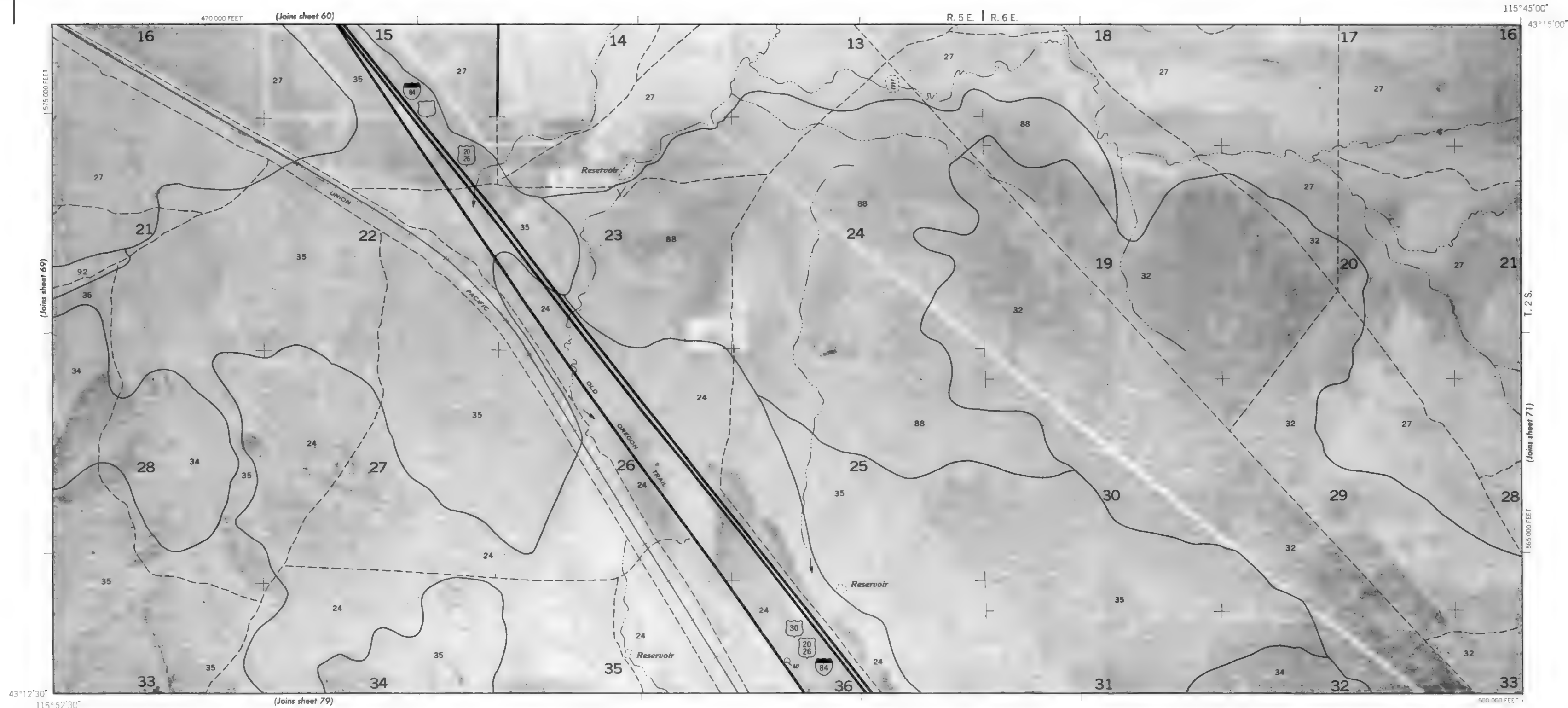


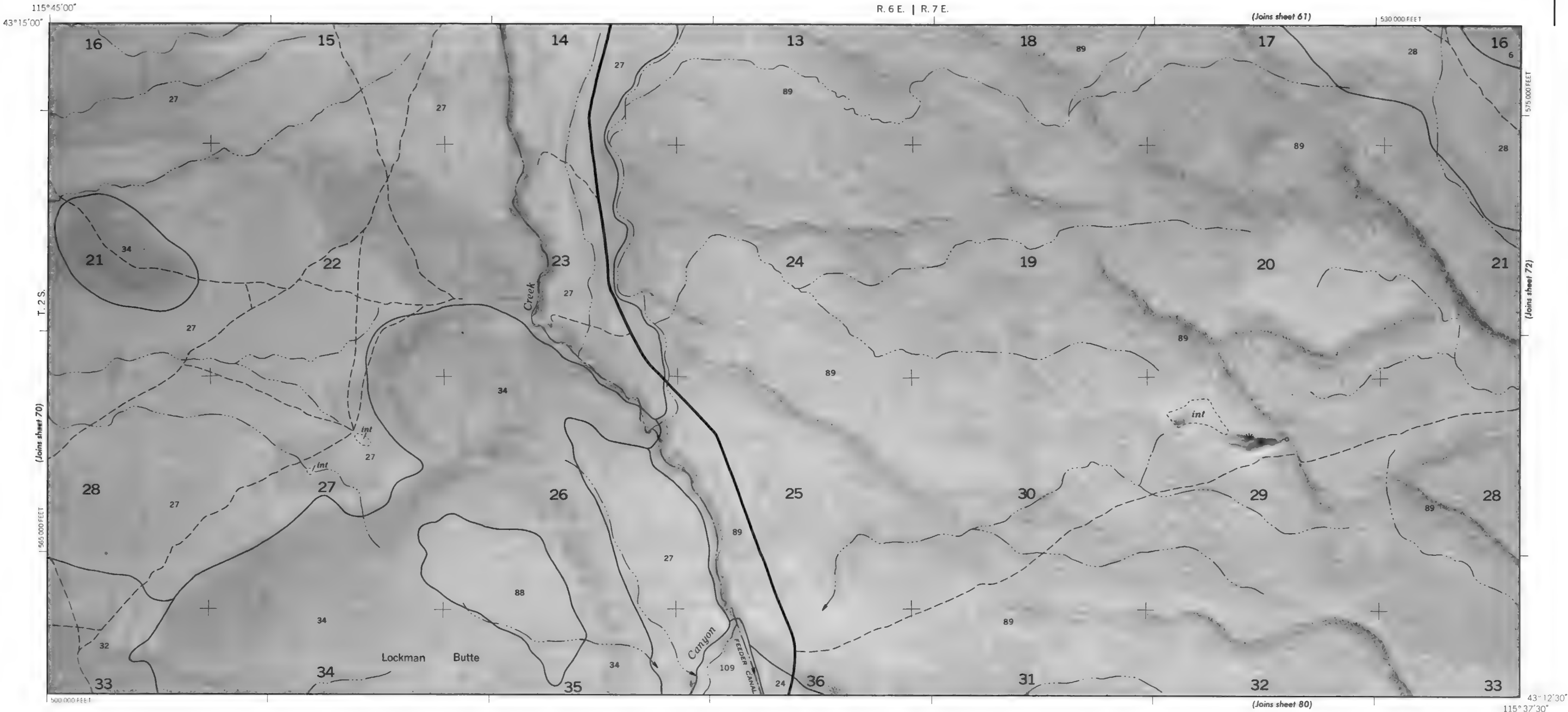




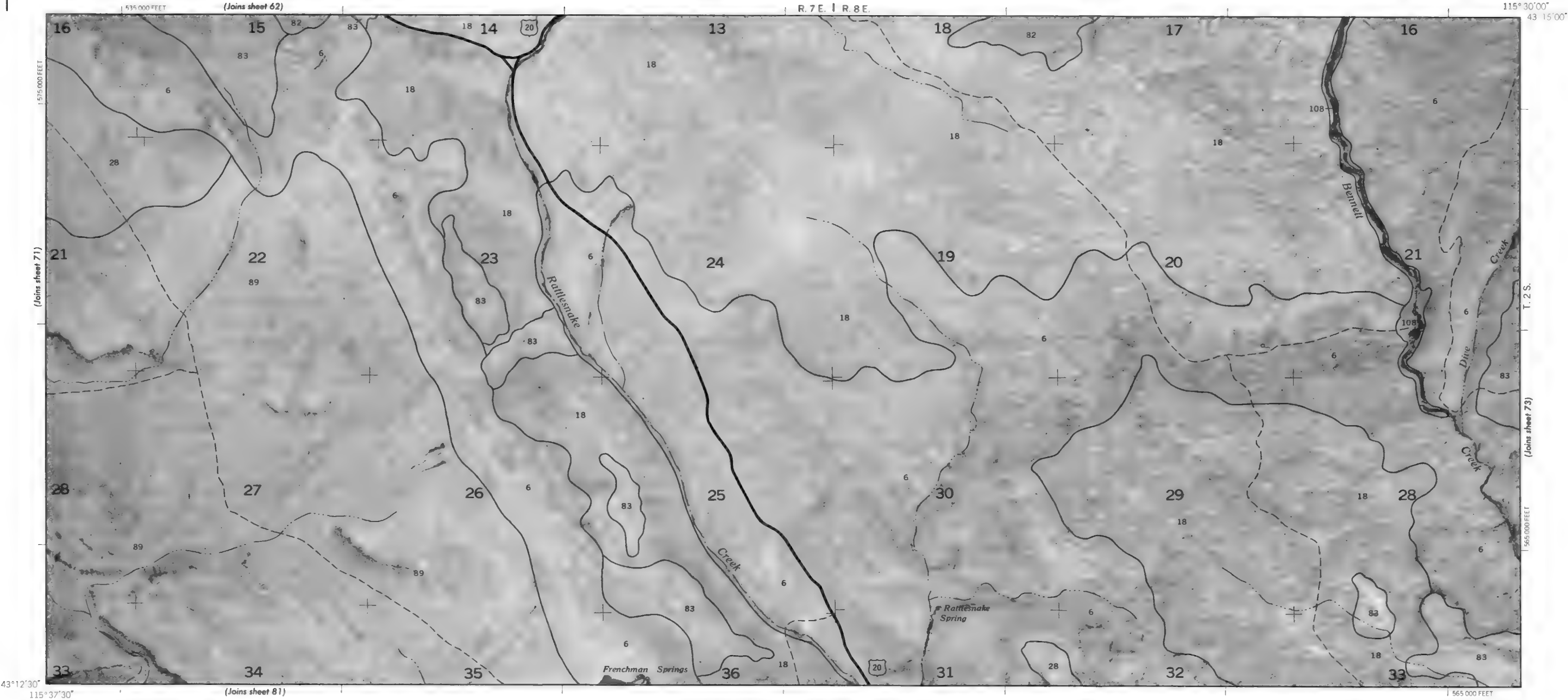






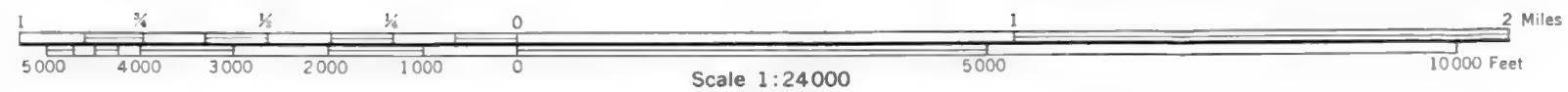
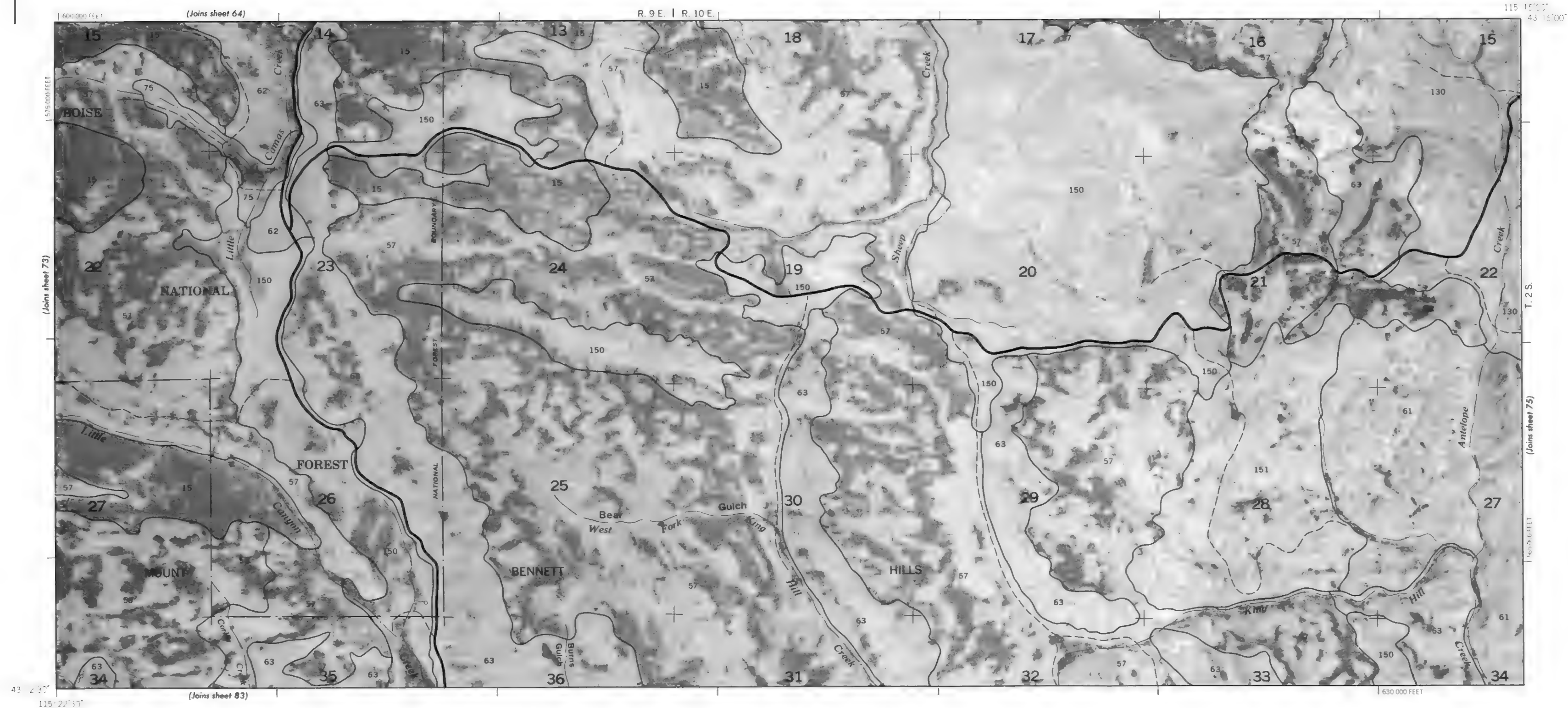




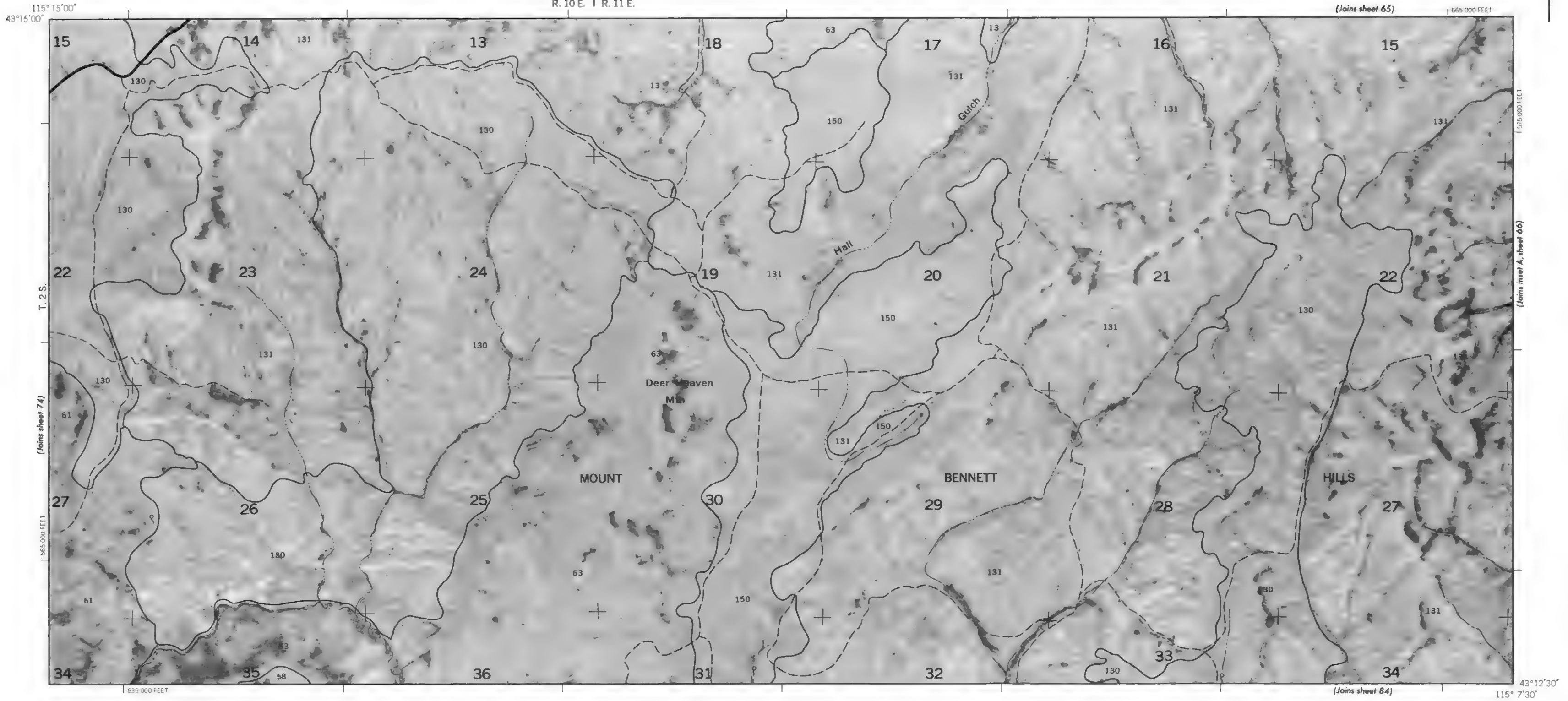


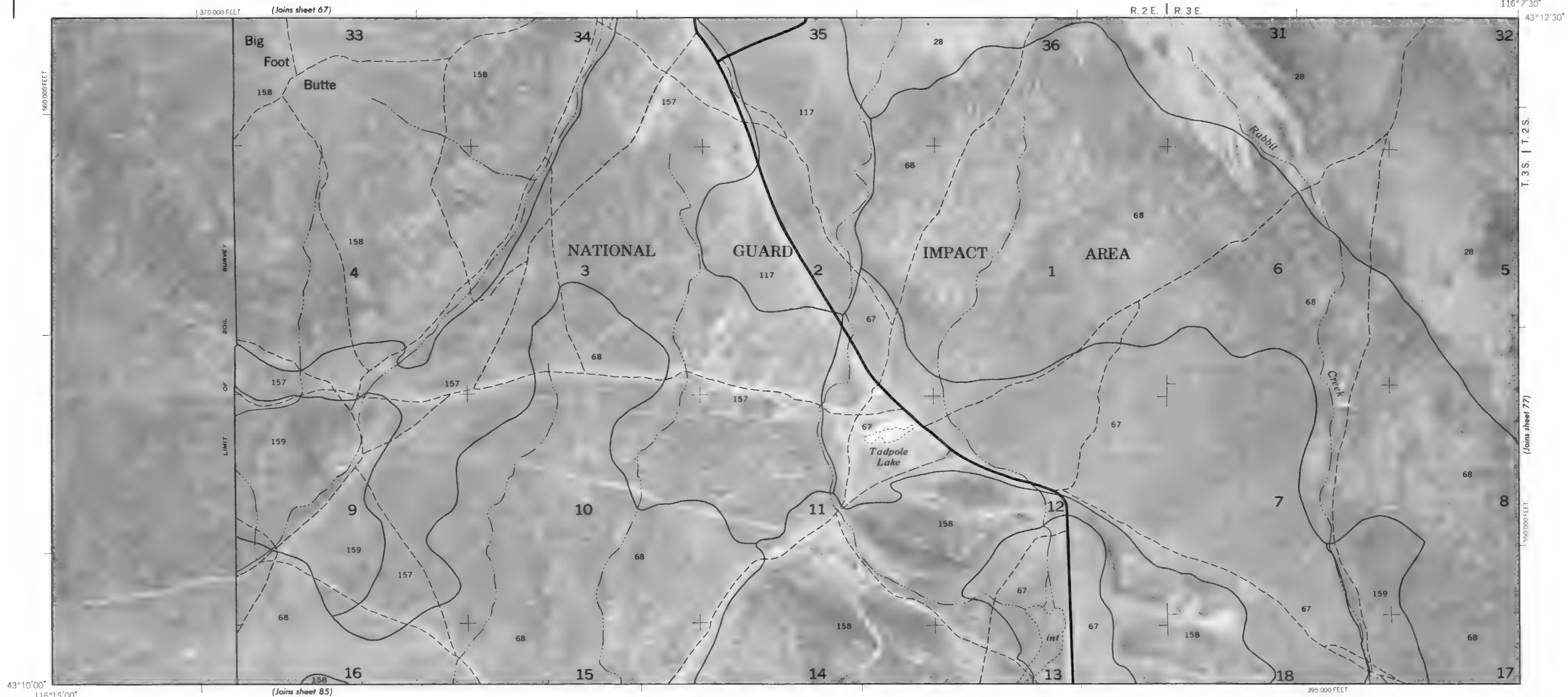


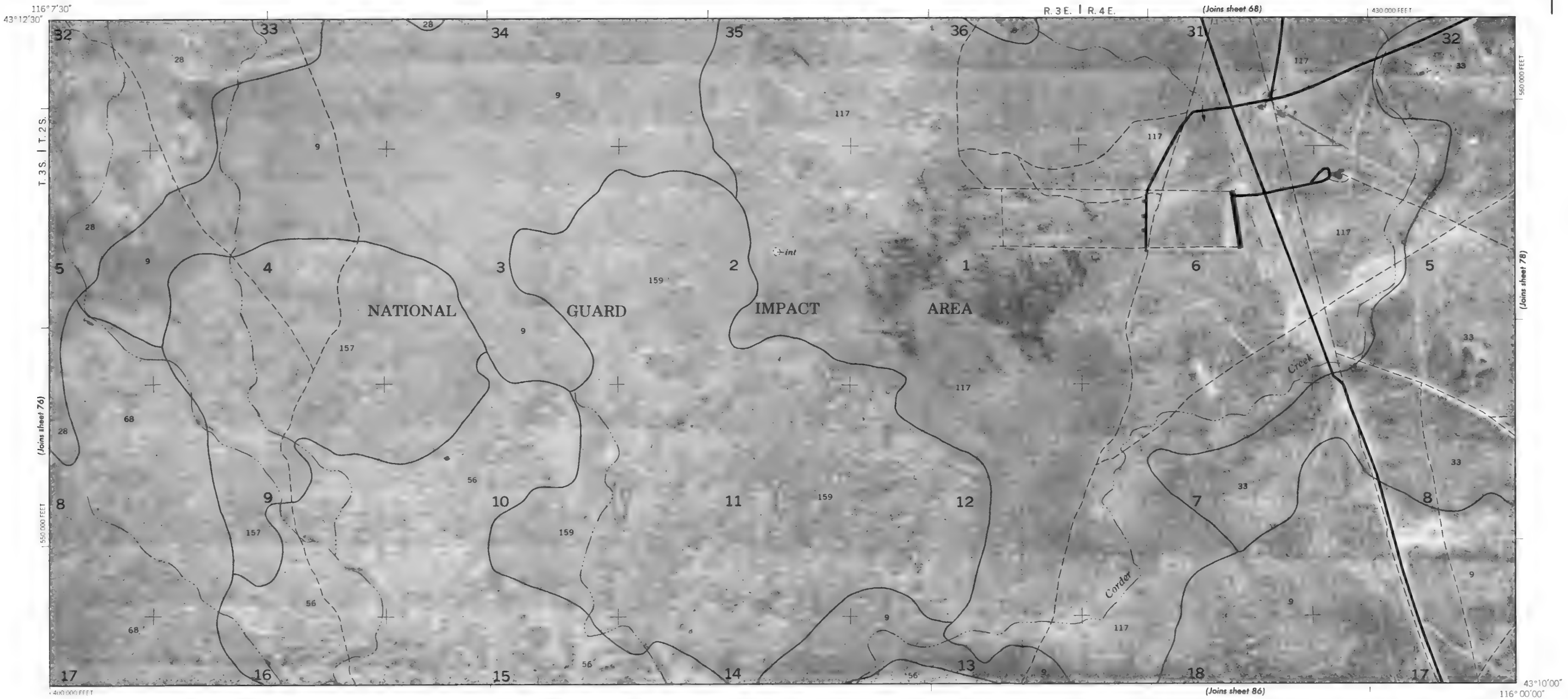
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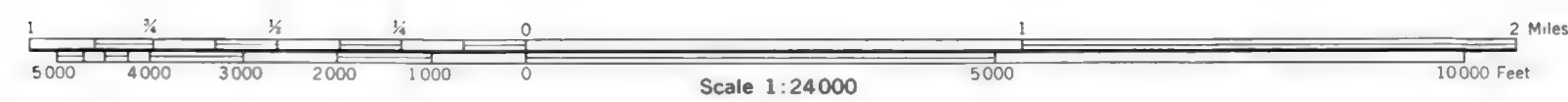
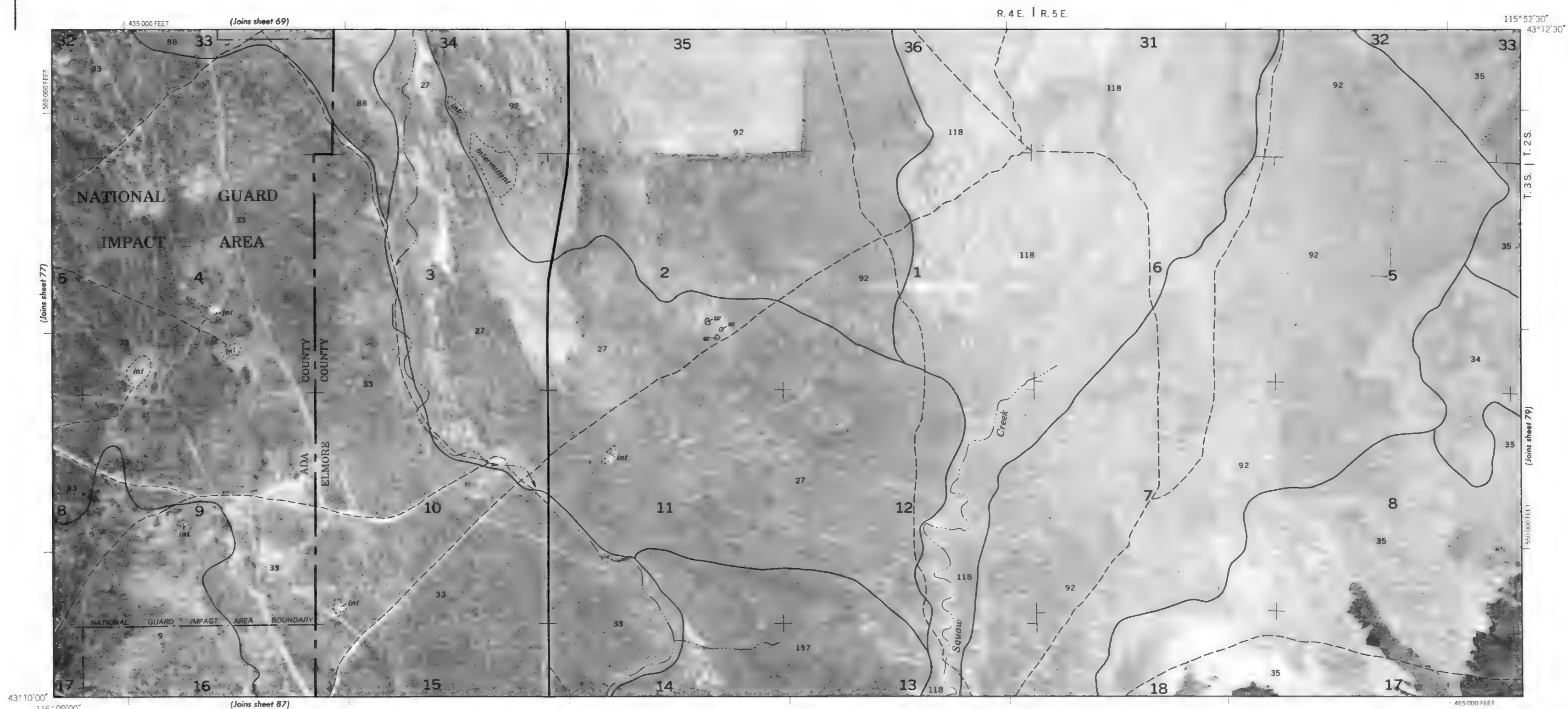


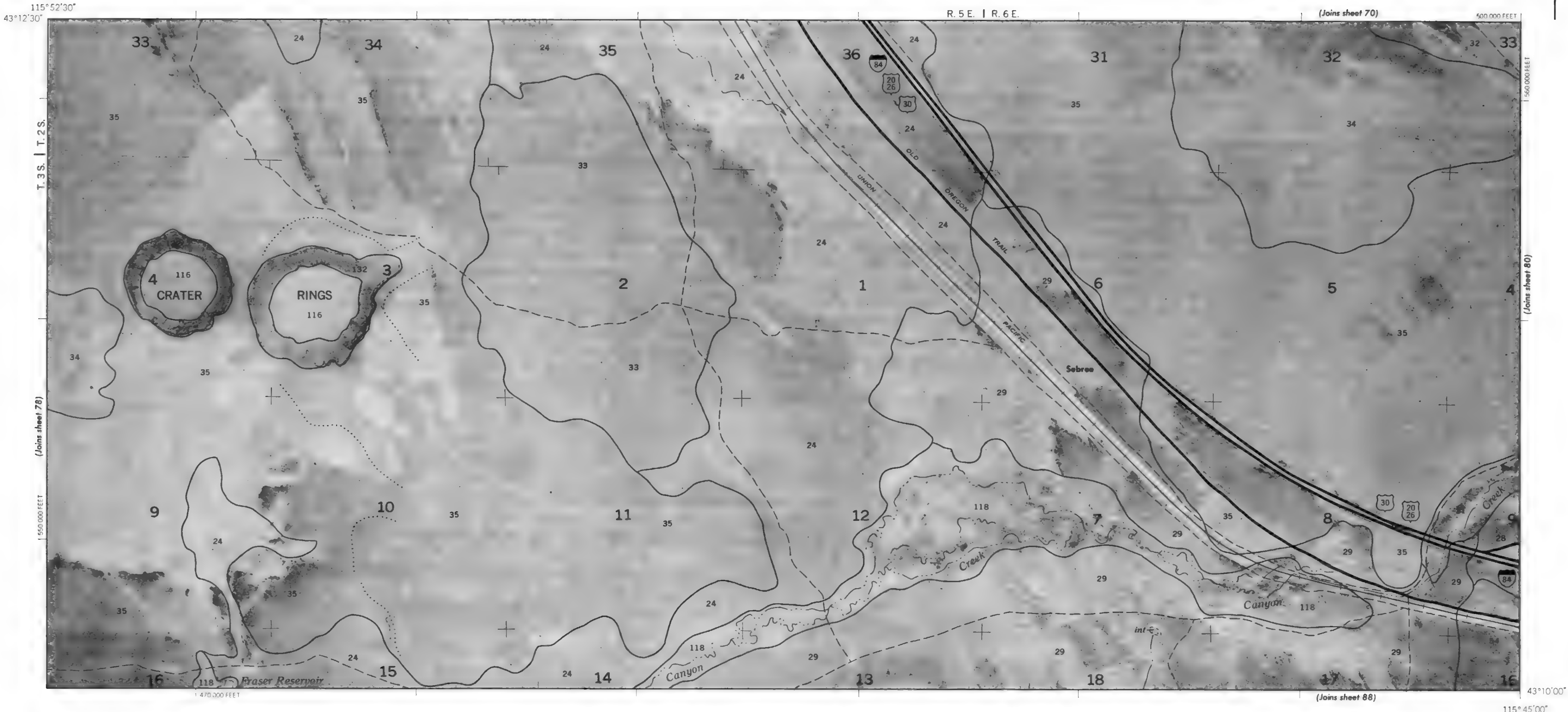












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